OTC TOOLS

Catalogue No. 28

OWATONNA TOOL CO.

OWATONNA, MINN.

oTc Guarantee

oTc Tools are guaranteed against defects in material and workmanship. Claims should be submitted to our factory for test and determination of defects.

All oTc Tools are guaranteed to do the job for which they are built, in a satisfactory manner.

Any tool which has proven to be defective will be replaced free of charge provided it has not been abused, improperly ground or heated, or otherwise mistreated.

Service on oTc Tools is offered at any time during the life of our tools at a cost to the user covering only material and labor necessary to recondition.

OWATONNA TOOL COMPANY
Owatonna, Minnesota

We Pay postage and C. O. D. charges on all orders for $3.50 or over.
We also pay postage on all "Paid in Advance" Orders.

H M Wilcox Detroit Lakes

FOREWORD

It has been the aim of the Owatonna Tool Company in the past to build the best tools it was possible to make. No detail of construction or design was too small to receive our most serious attention and every effort was made to build **oTc** tools out of the finest material obtainable.

In these days of mass production and strenuous competition the tendency with many tool manufacturers is to substitute low grade material and indifferent, unskilled labor in an effort to lower their prices; but with a consequent sacrifice of quality. During the past years when everyone was looking for ways and means of selling their merchandise at reduced prices **oTc** was looking for more advanced methods of manufacturing and heat treating, and finer materials. In other words, our aim has never changed. We have continued and shall continue to use the finest material regardless of cost; we shall employ skilled labor more than ever in an effort to improve our present line and to bring out new equipment so necessary in the modern automotive service shop.

oTc Tools are designed to make your work faster and easier, to whip "tough jobs" that are continually cropping up in new model cars and trucks, and you may be sure that when you tackle a job with an **oTc** tool there will be no interruption in the job due to faulty design or construction.

oTc Tools are designed and built by mechanics, for mechanics who appreciate good tools. **oTc** quality is the result of years of experience in the building of tools plus high grade materials, scientific heat treating and a manufacturing plant that is one of the most modern and completely equipped special tool plants in the country.

We believe that the mechanic of today is interested, not in cheap tools cheaply built, but in quality tools at a fair price, and we shall continue our policy of building the FINEST TOOLS MONEY CAN BUY!

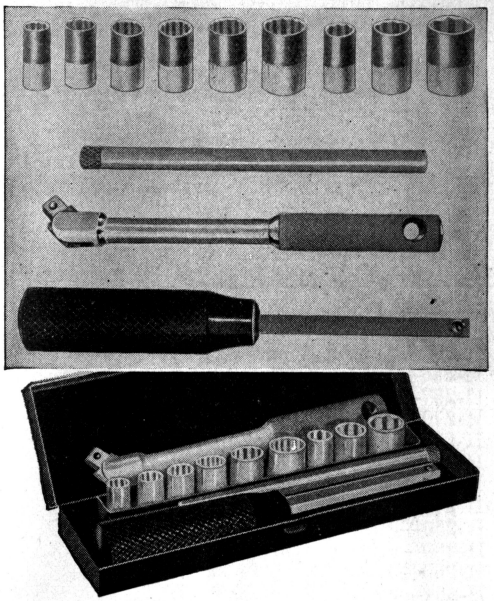
All Prices Are Net—Subject to Change Without Notice

INDEX

Axle Protectors 28
Bearing Splitter 38, 39
Bendix Brake Adjusting Tool 49
Box Wrenches 16, 17, 18, 19
BUICK TOOLS 65
Bushing Drivers, Universal 25
Bushing Extractor 49
Carbon Scraper 49
CHEVROLET TOOLS 60, 61, 62, 63
Combination Wrenches, Box and Open End 21
Chisels and Punches 69, 70, 71, 72
CHRYSLER TOOLS 64
Dash Cutter 36
Dies (Screw Plate) 33
DRILLS 48
END WRENCHES (Engineer) 20
Flex Handles 3, 4, 5, 7, 8, 10, 11, 12, 13
Flex Ratchets 4, 5, 8, 10, 12
FORD TOOLS 50, 51, 52, 53, 54, 55, 56, 57, 58, 59
Gear Pullers 26, 27
Gear Puller Attachments 44
Gauges (Thickness) 30
Grinding Wheels 67
Hack Saw Blades 31
Hollow Punches 66
Hub Puller, Universal 29
Ignition Wrenches 21
McCormick-Deering Head Wrench 65
MULTI-PURPOSE PULLER 40, 41
Obstruction Wrenches 21
Pan Holder Studs 29
Pedal Jack 23
Pipe Flaring Tool 37
Piston Ring Compressor 45
Pickup Tools 49
Pliers 42, 43
PLYMOUTH TOOLS 64
Pry Bars 68
Punches 70, 71, 72
Reamers 23
Ridge Reamer 34
Ratchet Wrenches 4, 5, 8, 10, 11, 12
Rim Wrench 66
Ring Groove Cleaner 49
Rivet Busters 68
Rivet Set Punches 68
Screw Drivers 23, 24
Screw Extractors 36
Screw Plate Set 33
Set Screw Wrenches 45
SOCKETS AND SOCKET SETS ..... 3 to 15
Stud Wrench 45
Tappet Wrenches 22, 46
Taps 32
Tap Wrenches 32, 33
Tee Handles 6, 7
Thread Chasers 34
Tie Rod Sockets 7
Tie Rod Tools 23, 29, 59
Timken Bearing Cup Attachment 40, 41
Timing Gear Puller Attachment 40, 41
Universal Sockets 6
Valve Seat Cutters 35
Valve Grinding Heads 35
Valve Lifters 47, 52
Valve Tappet Adjusting Wrenches 22, 46
Wheel Pullers 28, 29
Wire Wheel Brushes 67

Midget Socket Set

¼" Square Drive



The Midget Socket as designed by oTc embodies the latest design in socket and handle construction. The sockets are exceptionally thin-walled and broached deeply enough to permit working over double nuts such as are found in ignition and carburetor work. The Midget Flex Handle is unique in construction for such small work and takes the place of a variety of handles. The Midget Ignition Handle is built with a superloid, shock-proof, indestructible grip and is unusually practical.

This set is complete and very necessary equipment in every mechanic's tool box. It is particularly handy for all electrical, ignition and carburetor work and can be adapted for use on radios and electric refrigerators.

The M-81 set contains six twelve point sockets, three eight point sockets, the H-75 Flex Handle with Tee Bar, the H-78 Ignition Handle in the H-90 box as illustrated.

12 Point Sockets			8 Point Sockets		
No.	Size	Price	No.	Size	Price
M-8	¼"	$0.20	S-8	¼"	$0.20
M-9	9/32"	.20	S-10	5/16"	.20
M-10	5/16"	.20	S-12	⅜"	.20
M-11	11/32"	.20	H-75	Midget Flex Handle	1.15
M-14	7/16"	.20	H-78	Midget Ignition Handle	.50
M-12	⅜"	.20	H-90	Midget Box	.45

M-81 Midget Socket Set, complete in box $3.90

oTc Junior 12 Point Sockets

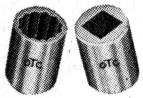
⅜" Square Service Connections

Because of their design, exceptionally thin walls, light weight and great strength, these Junior Sockets and Handles have proven to be extremely popular with all classes of mechanics. They are ideally suited for work on crank cases, manifold nuts and all light fast work in inaccessible places on Trucks and Tractors as well as on all makes of passenger cars.

Hot forged from Chrome Vanadium steel the Sockets are accurate as to size and short enough to make a close coupled wrench when used with the Junior Handles.

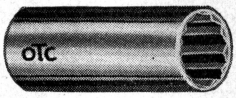
Sockets and Handles beautiful plated finish.

Item No.	Opening Size	Price	Item No.	Opening Size	Price
212	⅜"	$0.40	220	⅝"	$0.40
214	7/16"	.40	222	11/16"	.40
216	½"	.40	224	¾"	.40
218	9/16"	.40			



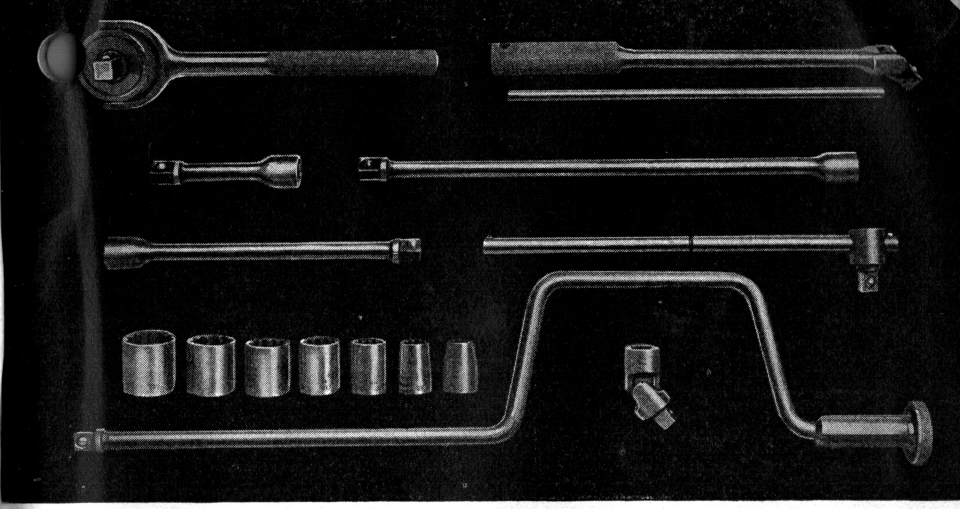
H-283—Junior Speed Handle, 15" Over-all $1.25
H-286—Junior Offset Handle ..... .75
H-287—Junior Sliding T Handle 1.00
H-270—Junior 1½" Extension ..... .60
H-271—Junior 3" Extension ..... .70
H-272—Junior 6" Extension ..... .75
H-273—Junior 10" Extension ..... .85
H-275—Junior Flex Handle 1.65
H-250—Junior One Hand Speeder 1.25
H-289—Junior Universal Joint 1.50
H-260—Junior Flex Ratchet with Plug 3.00
H-261—Junior Ratchet with Plug 2.50
H-262—Junior Ratchet Plug ..... .35
H-251—12" Junior T Handle 1.25
H-252—20" Junior T Handle 1.50
H-227—Junior Tie Rod Socket .50
H-290—Junior Socket Set Box 1.25

oTc Deep Junior Sockets



For use on Hexagon and Square nuts in running board channels, fender support, body bolt work and on piston pin locks. These 2" Junior Sockets are ideally suited to this work because of their extra length and thin walls. To be used with Junior Handles—⅜" square service connections. Plated finish.

Twelve Point			Eight Point		
Item No.	Opening Size	Price	Item No.	Opening Size	Price
L-212	⅜"	$0.50	S-212	⅜"	$0.50
L-214	7/16"	.50	S-214	7/16"	.50
L-216	½"	.50	S-216	½"	.50
L-218	9/16"	.50			
L-220	⅝"	.50			

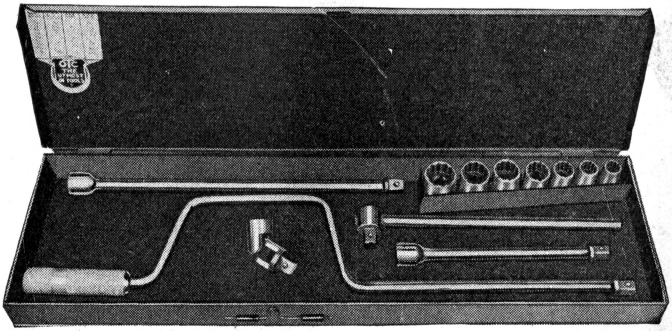


No. SF-280 Junior Superflex Set

Consists of 14 units as pictured above: $\frac{3}{8}$"—$\frac{7}{16}$"—$\frac{1}{2}$"—$\frac{9}{16}$"—$\frac{5}{8}$"—$\frac{11}{16}$"—$\frac{3}{4}$" Sockets (with $\frac{3}{8}$" square connections) 15" Speed Handle, Flex Handle with T Bar, Flex Ratchet, 3", 6", 10" Extensions and Universal Joint. A set comprising a utility combination for good mechanics who work fast and efficiently. All parts plated.

SF280—**oTc** Junior Superflex Set (Tools only) **$12.50**
H-290—**oTc** Junior Socket Box **1.25**

No. 282 Junior Set



Consists of 13 units as follows:

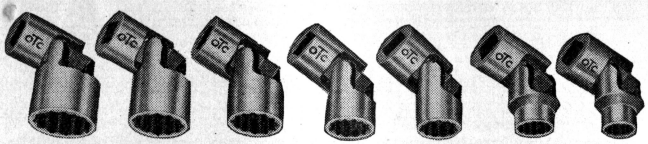
Seven twelve point Junior sockets, $\frac{3}{8}$", $\frac{7}{16}$", $\frac{1}{2}$", $\frac{9}{16}$", $\frac{5}{8}$", $\frac{11}{16}$", $\frac{3}{4}$",($\frac{3}{8}$" Square service connection) 15" Speed Handle, Sliding T Bar, 6" Extension, 10" Extension, Universal Joint. Steel Box. All tools beautifully plated.

282—Set Complete (tools only) **$8.15**
H-290—Metal Case **1.25**

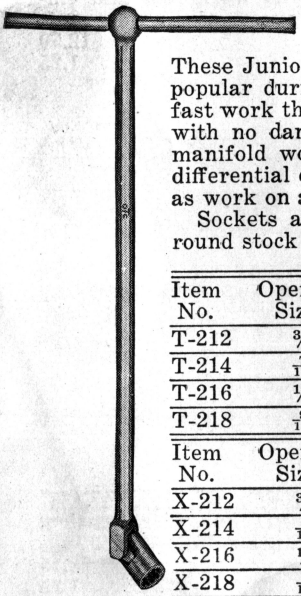
oTc Junior Universal Sockets

⅜" Square Service Connection

These are the shortest coupled and thinnest walled universal sockets made and are a valuable addition to any mechanic's kit. Will work at nearly right angles. Just the thing for pan bolts, manifold nuts, carburetors, fly wheel housings, universal joint bolts, starters, generators, etc. Plated finish.



Item No.	Opening Size	Price	Item No.	Opening Size	Price
U-212	⅜"	$1.35	U-220	⅝"	$1.50
U-214	7/16"	1.35	U-222	11/16"	1.60
U-216	½"	1.40	U-224	¾"	1.60
U-218	9/16"	1.50			



oTc Junior Universal Tee Wrenches

These Junior Universal Tee Wrenches, have become exceedingly popular during the past few years. Built light and strong for fast work they allow reaching into tough places at difficult angles with no danger of the socket falling off. Especially good for manifold work, crank cases, bell housing, starters, generators, differential covers, universal joint bolts, carburetors, etc., as well as work on all types of airplane motors.

Sockets are very thin and strong. Shank is made from ⅜" round stock and heat treated from end to end. Satin finish.

Item No.	Opening Size	Handle	Price	Item No.	Opening Size	Handle	Price
T-212	⅜"	12"	$2.50	T-220	⅝"	12"	$2.75
T-214	7/16"	12"	2.50	T-222	11/16"	12"	2.75
T-216	½"	12"	2.50	T-224	¾"	12"	2.75
T-218	9/16"	12"	2.50				

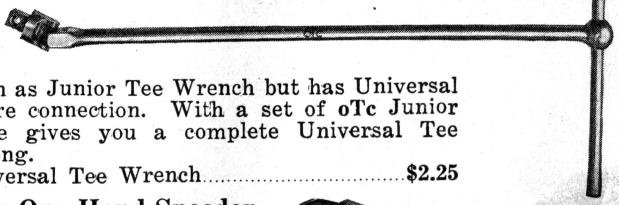
Item No.	Opening Size	Handle	Price	Item No.	Opening Size	Handle	Price
X-212	⅜"	20"	$2.75	X-220	⅝"	20"	$3.00
X-214	7/16"	20"	2.75	X-222	11/16"	20"	3.00
X-216	½"	20"	2.75	X-224	¾"	20"	3.00
X-218	9/16"	20"	2.75				

oTc Junior Tee Handles

oTc Junior Tee Handles are for use with either our Junior Sockets or Junior Universal Sockets. Strong and light. Plated finish.

H-251—Junior Tee Handle 12" $1.25
H-252—Junior Tee Handle 20" 1.50

No. H-253 Universal Tee Handle



Same construction as Junior Tee Wrench but has Universal Joint and ⅜" square connection. With a set of oTc Junior sockets this handle gives you a complete Universal Tee Wrench Set. 12" long.

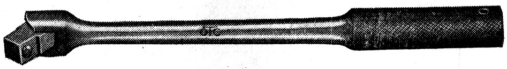
H-253—Junior Universal Tee Wrench $2.25

oTc Junior One Hand Speeder

A distinct innovation in speed handles. Has ⅜" square connection for use with oTc Junior Sockets. Plated finish.

H-250—Junior 1 Hand Speeder $1.25

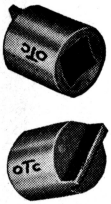
oTc Junior Flex Handles



Hand forged from Chrome-Vanadium steel and heat treated to stand hard knocks and give perfect and satisfactory service. 10" long, ⅜" square connection. Plated finish.

H-275—Junior Flex Handle $1.65

oTc Tie Rod Sockets



For adjusting tie rod, drag link and shock absorber screws. Plated finish.

Item No.	Width of Bit	Service Connection	Price
227	¾"	⅜" sq.	$0.50
127	13/16"	½" sq.	.75
129	15/16"	½" sq.	.75

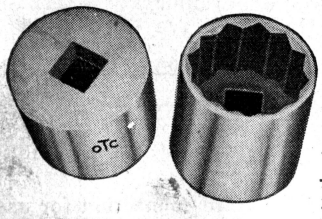
oTc 12 Point Standard Sockets

oTc Sockets are recognized by mechanics everywhere as being the highest quality sockets ever made. This statement is based on facts. Thousands of men throughout the country have taken the trouble to write us voluntarily and tell us of the wonderful service oTc Sockets have given them.

They are Hot Forged from finest Chrome Vanadium steel and due to this Hot Forging are exceptionally strong and more accurate as to size.

They are individually Heat Treated in electrically controlled furnaces which insures uniformity in strength and toughness.

The beautiful satin plated finish gives them an appearance that shows at a glance their exceptional quality. We invite you to compare oTc Sockets with any other socket on the market for strength, design and finish. They are masterpieces of the toolmakers craft and second to none.



oTc Standard Units

½" Square Service Connections

Item No.	Opening Size	Price	Item No.	Opening Size	Price
114	7/16"	$0.45	126	13/16"	$0.65
116	½"	.45	128	⅞"	.65
118	9/16"	.45	130	15/16"	.70
119	19/32"	.45	131	31/32"	.70
120	⅝"	.50	132	1"	.70
121	21/32"	.55	134	1 1/16"	.80
122	11/16"	.55	136	1⅛"	.85
124	¾"	.55	138	1 3/16"	.90
125	25/32"	.60	140	1¼"	.90

Refer to page 73 for Wrench Opening Sizes

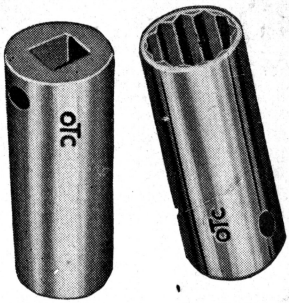
H-183—Speed Handle, 15" Over-all	$1.25
H-184—Speed Handle, 18" Over-all	1.50
H-185—Flex Speeder	2.50
H-186—Offset Handle	.90
H-187—10" Sliding T Handle	1.10
H-181—15" Sliding Tee Handle	1.25
H-160—Flex Ratchet with Plug	4.00
H-161—Ratchet Wrench with Plug	3.50
H-162—Ratchet Wrench Plug	.50
H-189—Universal Joint	1.50
H-170—1½" Extension	.60
H-171—3" Extension	.70
H-172—6" Extension	.75
H-173—10" Extension	.85
H-174—18" Extension	1.00
H-175—Flex Handle, 12" with T Bar	1.75
H-176—Flex Handle, 15" with T Bar	2.00
H-177—Flex Handle, 18" with T Bar	2.50
H-178—Head Bolt Speeder with 15" Cross Bar	$2.75

oTc Sockets are forged HOT in a machine weighing over 15 tons and exerting tremendous pressure. The steel is forced around a forming tool to shape the inside of the socket. This method vastly improves the texture of the steel as well as making the opening cleanly and accurately. There is absolutely no tearing of the metal as there is in the old style cold-punched socket.

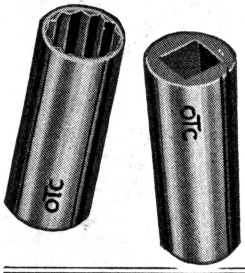
oTc Spark Plug Sockets

3½″ Long—½″ Square Service Connections

Hot forged and accurate, with very thin walls to get in close places on the latest motors. Beautiful plated finish.



Item No.	Opening Size	Price	Item No.	Opening Size	Price
P-126	13/16″	$0.95	P-132	1 ″	$1.10
P-128	7/8″	1.00	P-136	1 1/8″	1.20
P-130	15/16″	1.05			



oTc Extra Length Sockets

3″ Long—½″ Square Service Connections

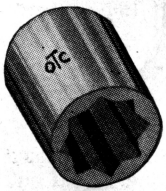
These Sockets are especially designed for shackle, spring clip and body bolts, but are also indispensable for a great many other jobs. They are hot forged with very thin walls and are exceptionally strong. Attractive plated finish.

Item No.	Opening Size	Price	Item No.	Opening Size	Price	Item No.	Opening Size	Price
L-116	½″	$0.70	L-124	¾″	$0.80	L-130	15/16″	$1.05
L-118	9/16″	.70	L-125	25/32″	.85	L-131	31/32″	1.10
L-120	5/8″	.80	L-126	13/16″	.85	L-132	1 ″	1.10
L-122	11/16″	.80	L-128	7/8″	.90	L-134	1 1/16″	1.20

oTc Eight Point Sockets

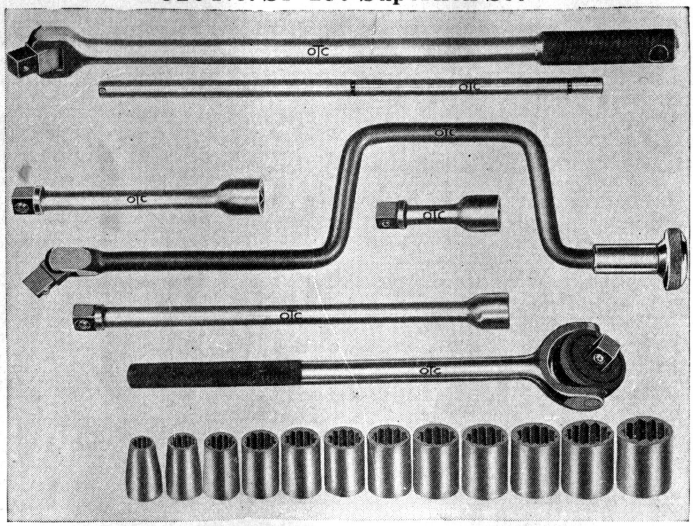
½″ Square Service Connections

These Sockets are hot forged and very strong, and are very useful for Ford main bearings and brake adjustments, body bolts on a great many cars, etc. Satin plated finish.



Item No.	Opening Size	Price	Item No.	Opening Size	Price
S-114	7/16″	$0.45	S-120	5/8″	$0.50
S-116	½″	.45	S-122	11/16″	.55
S-118	9/16″	.45	S-124	¾″	.55

oTc No. SF-180 Superflex Set



A combination of sockets and handles designed to increase the speed, efficiency and thoroughness of every mechanic who owns this set. To those men who aspire to reach a maximum of efficiency and who take pride and interest in good workmanship this set would prove to be a factor in their success.

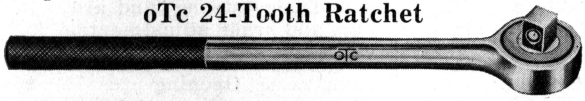
Consisting as it does of all of the most popular handles and socket sizes most needed in every day work, this set combines a maximum of utility and flexibility at a very low price.

The **oTc** Superflex Socket Set consists of the following pieces: Twelve, 12 point Sockets—$\frac{7}{16}$"—$\frac{1}{2}$"—$\frac{9}{16}$"—$\frac{5}{8}$"—$\frac{21}{32}$"—$\frac{11}{16}$"—$\frac{3}{4}$"—$\frac{25}{32}$"—$\frac{13}{16}$"—$\frac{7}{8}$"—$\frac{15}{16}$" and 1". 15" Flex Handle (with T Bar), Flex Brace, and 24 tooth Flex Ratchet—3 extensions—3"—6" and 10".

All parts made from a high grade Chrome Alloy Steel and individually heat treated to withstand constant use and service. All parts beautifully plated.

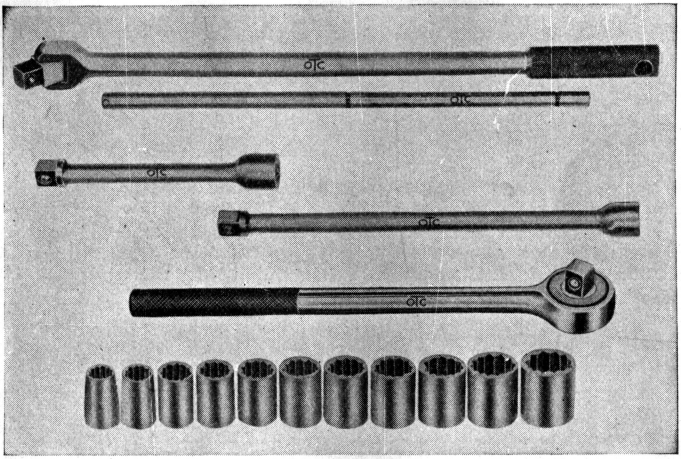
SF-180—**oTc** Superflex Set (as pictured above) **$17.60**
H-190—**oTc** Superflex Set Metal Case **1.50**

oTc 24-Tooth Ratchet



A very smooth working ratchet with 24 husky teeth, four dogs always engaged, enclosed to keep out dirt and grease. Equipped with "push thru" type plug. Will not wedge or stick. This ratchet is built for heavy service. Attractively plated.

H-161—**oTc** Standard Ratchet, with ½" Square Plug **$3.50**



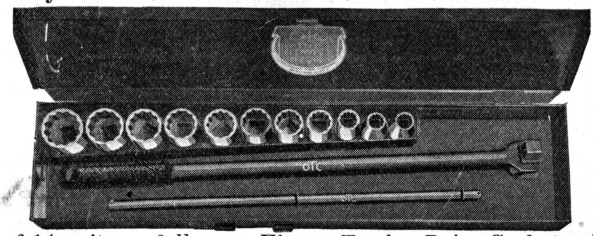
oTc No. SF-181 Standard Flex Set

A medium priced combination of sockets and handles that is within the reach of every pocketbook. This set can be used on all makes of cars and on a great variety of jobs. Contains the following pieces: Eleven, 12 point sockets, from $\frac{7}{16}$ to 1" inclusive, 15" Flex Handle, 6 and 10 inch Extensions and the **oTc** 24 tooth Ratchet in a strong metal carrying case. All parts attractively finished in satin plate.

SF-181—**oTc** Standard Set in Box **$14.35**

oTc No. F-182 Flex Set

This combination has been made up particularly for the man who cannot afford to buy a complete set of **oTc** Sockets and Handles at one time. Because we recognize the fact that the man who buys this set will eventually wish to complete it we have enlarged the metal box in order that the rest of the handles may be added later if desired.

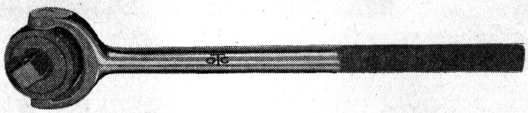


Consists of 14 units as follows: Eleven Twelve Point Sockets, $\frac{7}{16}$", $\frac{1}{2}$", $\frac{9}{16}$", $\frac{5}{8}$", $\frac{11}{16}$", $\frac{3}{4}$", $\frac{25}{32}$", $\frac{13}{16}$", $\frac{7}{8}$", $\frac{15}{16}$" and 1" ($\frac{1}{2}$" square service connections) 15" Flex Handle and T Bar.

F-182—**oTc** Flex Set (Tools only) **$8.30**

F-190—**oTc** Metal Case **1.00**

oTc Standard Handles
oTc Flex Ratchet

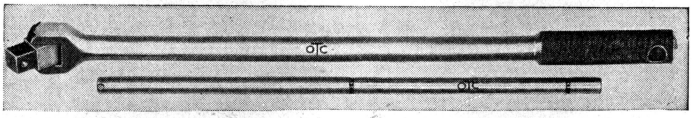


A radical departure in socket wrench handles. Combines all of the good features of the Flex Handle—with those of the 24 tooth **oTc** Ratchet.

Made in both Standard (½" square service) and Junior (⅜" square service connection) sizes and a necessity with either set to the mechanic who wishes to save time. Has push thru plug. Satin finish.

H-160—**oTc** Standard Flex Ratchet with ½" Square Plug **$4.00**
H-260—**oTc** Junior Flex Ratchet with ⅜" Square Plug **3.00**

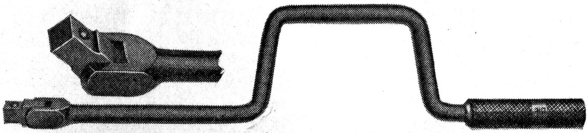
oTc Flex Handles



Positively the strongest and most perfectly balanced Flex Handles made. Just the thing for Head Bolts, Main and Connecting Rod Bearings. Attractive plated finish. ½" service connection.

H-175—**oTc** 12" Flex Handle with T Bar **$1.75**
H-176—**oTc** 15" Flex Handle with T Bar **2.00**
H-177—**oTc** 18" Flex Handle with T Bar **2.50**

oTc Standard Flex Speeder



A short throw brace, with the valuable flex feature. Leverage, to break loose or tighten the toughest nut—speed to spin them on, or off. A wonderfully handy and convenient tool. ½" square service, length 16" over all. Attractively plated.

H-185—**oTc** Flex Speeder **$2.50**

oTc Universal Head Bolt Speeder

Something new in service handles for detachable sockets. A real tool for speed work on Head Bolts. Built for use on all makes of cars and can be used on a great many trucks. It is 27" long, has a free wheeling knurled grip in the center and a 15" cross bar for speed or power. Head Bolts can be broken loose or tightened quickly and easily. ½" service connection.

H-178—Universal Head Bolt Speeder **$2.75**

No. 199 Box and Sets

Super Set No. 185

(Illustrated Above)

The above set contains a very complete combination of Sockets and Handles considered most practical for general repair work. A set that will be the pride of the most seasoned and experienced mechanic or the beginner alike. Only essential tools are included. The case is a compact, sturdy, well built box of heavy gauge metal with a cantilever tray that opens when the lid is raised. Small and light enough for easy efficient handling yet strong and large enough to hold other tools than those shown.

The No. 185 Super Set contains 40 separate items as follows: 17 Standard Sockets, 7-16", 1-2", 9-16", 19-32", 5-8", 21-32", 11-16", 3-4", 25-32", 13-16", 7-8", 15-16", 1", 1 1-16", 1 1-8", 1 3-16", 1 1-4", 7 Junior Sockets 3-8", to 3-4" by sixteenths, 15" Speed Handle, 15" Flex Handle, Tee Bar, 10" Sliding Tee Handle, Universal Joint, Ratchet with Plug, 10", 6" and 3" extensions all with 1-2" service connections, 15" Junior Speed Handle, Ratchet with plug, Sliding Tee Handle, Universal Joint 10", 6" and 3" extensions all with 3-8" square service connections.

No. 185 Super Set complete in Chest (as illustrated) **$38.05**

Super Set No. 184

(Not Illustrated)

An ideal set for the man who wishes to build up a complete set gradually. Less expensive than the set above but designed with the idea of obtaining a maximum of efficiency with the smallest number of tools. The No. 184 Super Set contains the following tools: 17 Standard Sockets 7-16", to 1 1-4" as above, 7 Junior Sockets 3-8" to 3-4" as above, 15" Standard Flex Handle, Tee Bar, Standard Universal Joint, Standard 6" Extension, Junior Speed Handle, Junior Ratchet, Junior Universal Joint and Junior 6" Extension. Thirty-two separate items in the metal case.

No. 184 Super Set complete in Chest **$28.10**

No. 199 Mechanic's Tool Chest (as illustrated less tools) **4.35**

oTc Heavy Duty Sockets

¾" Square Service Connection

Up to the present time it was generally believed that in order to do heavy duty work on Tractors, Trucks, Steam Shovels, etc., and to stand the abuse that apparently was necessary on this kind of equipment, Sockets had to be thick and heavy and the Handles had to be big and clumsy.

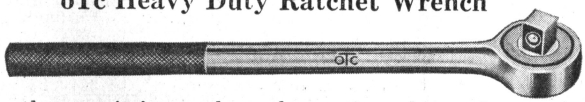
When **oTc** started building Heavy Duty Socket Sets, the exceptionally thin Sockets and the light, well balanced Handles were a revelation to the trade. **oTc** has set a standard for Heavy Duty equipment that has not yet been equaled.

Close examination of these Hot Forged Heavy Duty Sockets will convince you of their accuracy as to size, their unequaled strength and their extremely thin walls. All Sockets and Handles beautifully plated.

No.	Opening	Price	No.	Opening	Price	No.	Opening	Price
328	⅞"	$0.90	340	1¼"	$1.10	352	1⅝"	$1.50
330	15/16"	.90	342	1 5/16"	1.20	354	1 11/16"	1.65
332	1 "	.90	344	1⅜"	1.20	356	1¾"	1.75
334	1 1/16"	.90	346	1 7/16"	1.30	358	1 13/16"	2.00
336	1⅛"	1.00	348	1½"	1.40	364	2 "	2.25
338	1 3/16"	1.05						

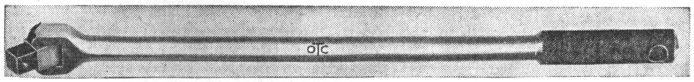
H-371—4½" Heavy Duty Extension $1.25
H-373—10" Heavy Duty Extension 1.50
H-374—18" Heavy Duty Extension 2.50
H-387—20" Heavy Duty Sliding Bar 2.25
H-377—20" Heavy Duty Flex Handle 4.00
H-361—20" Heavy Duty Ratchet with Plug 7.50
H-362—Heavy Duty Ratchet Plug ..... .75
H-390—Metal Case 2.00
H-391—Metal Case 3.00

oTc Heavy Duty Ratchet Wrench



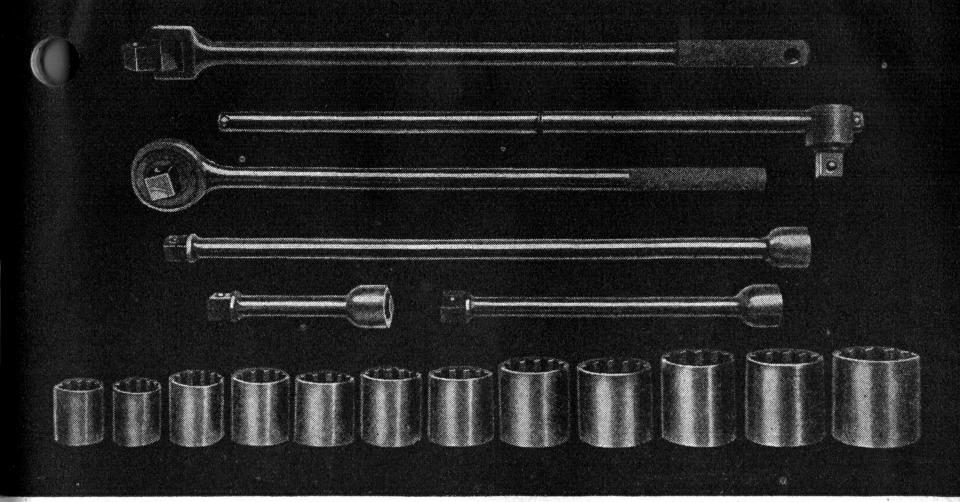
Has 36 teeth, permitting a short throw, four dogs, always in engagement. A brute for strength, yet small in size and weighs only 3 pounds. Handle 20" long. H-361—Heavy Duty Ratchet $7.50

oTc 20" Heavy Duty Flex Handles



These handles are forged from ¾" round stock and are ideal for main bearings, head bolts, connecting rods, axle work, etc., on tractors, trucks, graders, shovels and cars. ¾" service connection.

H-377—Heavy Duty Flex $4.00



No. HD-381 Heavy Duty Socket Set

A complete set of **oTc** Heavy Duty Sockets and Handles as listed below. This Heavy Duty Set is designed to handle work on all kinds of heavy equipment such as Trucks, Tractors, Graders, Steam Shovels, etc., and for service work on all types of Industrial machinery. It is essential in every shop where this type of work is done. A real labor saving unit.

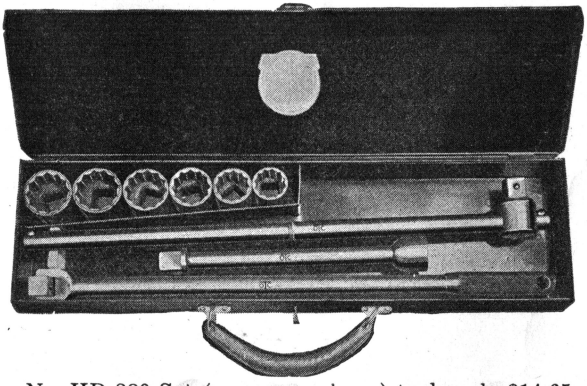
Set consists of 19 units as follows: 12 Heavy Duty 12 Point Sockets, ($1\frac{1}{16}$", $1\frac{1}{8}$", $1\frac{1}{4}$", $1\frac{5}{16}$", $1\frac{3}{8}$", $1\frac{7}{16}$", $1\frac{1}{2}$", $1\frac{5}{8}$", $1\frac{11}{16}$", $1\frac{3}{4}$", $1\frac{13}{16}$", and 2") $4\frac{1}{2}$" Extension, 10" Extension, 18" Extension, 20" Sliding Tee Bar, 20" Flex Handle, Heavy Duty Ratchet, and Heavy Steel Carrying Case.

No. HD-381—Heavy Duty Socket Set (tools only) **$36.25**
No. H-391—Metal Case **3.00**

No. HD-380 Heavy Duty Socket Set

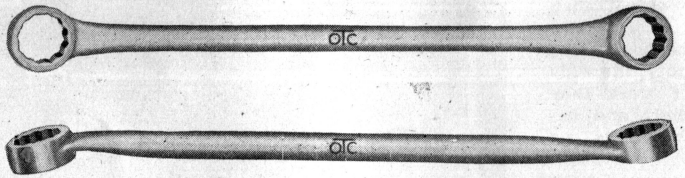
A wonderful set for work on light Trucks and Tractors, Axle Nuts on passenger cars, etc., where the larger size sockets cannot be used. It is possible to add more sockets and handles as needed, and this set forms a nucleus for a fine Heavy Duty Set.

Consists of 10 units as follows: 6 twelve point sockets $1\frac{1}{16}$", $1\frac{1}{8}$", $1\frac{1}{4}$", $1\frac{3}{8}$", $1\frac{7}{16}$", $1\frac{1}{2}$", ($\frac{3}{4}$" square service connection; 10" extension; 20" sliding bar; 20" flex handle. Steel box.



No. HD-380 Set (as shown above) tools only **$14.65**
No H-390—Metal Case **2.00**

oTc Twelve Point Box Wrenches



Despite the flood of cheap and inferior quality Box Wrenches on the market and a natural temptation to meet competition by substituting low grade materials, **oTc** has continued to build a superior wrench without sacrificing the fine quality of which we are so proud.

Constant refinement and improvement in design, materials, workmanship and heat treatment are represented in **oTc** Box Wrenches. In a comparatively short time Box Wrenches have become essential in garage work and no tool kit is complete without a set of them. They are performing a large percentage of the work formerly done by sockets, open and adjustable wrenches and have proven to be of great value as time and labor savers.

oTc 12 Point Box Wrenches are light in weight and convenient to use. Because of their unique offset construction, they will get into tight places and because of their wonderful strength they will stand a maximum amount of hard service.

We have built **oTc** Box Wrenches to conform to our high standards and still have been able to produce them cheaply enough so that they are within the reach of every pocketbook. A short trial will convince you that **oTc** 12 Point Box Wrenches are the cheapest in the long run.

Wrench numbers preceded by the letter "S" designates Short Pattern, all others are Long Pattern.

Table of Sizes

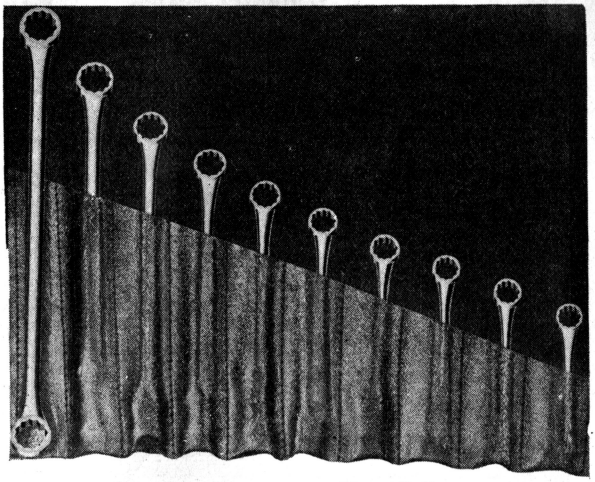
Wrench Number	Size Openings	Length Over-All	Price Each
S1214	3/8" - 7/16"	4 3/4"	**$0.65**
S1416	7/16" - 1/2"	5 "	**.70**
1416	7/16" - 1/2"	6 "	**.80**
S1618	1/2" - 9/16"	5 1/2"	**.85**
1618	1/2" - 9/16"	7 "	**.90**
S1820	9/16" - 5/8"	6 1/2"	**.95**
1820	9/16" - 5/8"	8 1/2"	**1.00**
2022	5/8" - 11/16"	10 "	**1.10**
2024	5/8" - 3/4"	12 "	**1.15**
2224	11/16" - 3/4"	12 "	**1.25**
2425	3/4" - 25/32"	12 3/4"	**1.40**
2628	13/16" - 7/8"	13 1/2"	**1.60**
3034	15/16" - 1 1/16"	15 1/2"	**2.20**
3236	1 " - 1 1/8"	17 "	**2.30**
3840	1 3/16" - 1 1/4"	18 "	**2.75**

Postage and C. O. D. Charges are paid on all orders for $3.50 or over.

oTc Box Wrench Sets

The Box Wrench sets listed below are suggested because of their utility, the wide range of work they will handle and because there is no duplication of sizes. These sets have proven popular and we are passing these suggestions along to you in hopes that you will find the set suitable for your needs.

oTc Box Wrenches can be purchased singly or in any combination. Where sets are ordered, Kits are furnished free.



No. 4L Set

1416—$\frac{7}{16}$-$\frac{1}{2}$"	$0.80
1820—$\frac{9}{16}$-$\frac{5}{8}$"	1.00
2224—$\frac{11}{16}$-$\frac{3}{4}$"	1.25
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
No. 4L Set in Kit	$4.65

No. 4 Set

S1214—$\frac{3}{8}$-$\frac{7}{16}$"	$0.65
1618—$\frac{1}{2}$-$\frac{9}{16}$"	.90
2024—$\frac{5}{8}$-$\frac{3}{4}$"	1.15
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
No. 4 Set in Kit	$4.30

No. 7 Set

S1214—$\frac{3}{8}$-$\frac{7}{16}$"	$0.65
1618—$\frac{1}{2}$-$\frac{9}{16}$"	.90
2024—$\frac{5}{8}$-$\frac{3}{4}$"	1.15
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
3034—$\frac{15}{16}$-1$\frac{1}{16}$"	2.20
3236—1-1$\frac{1}{8}$"	2.30
3840—1$\frac{3}{16}$-1$\frac{1}{4}$"	2.75
No. 7 Set in Kit	$11.55

No. 4S Set

S1416—$\frac{7}{16}$-$\frac{1}{2}$"	$0.70
S1820—$\frac{9}{16}$-$\frac{5}{8}$"	.90
2224—$\frac{11}{16}$-$\frac{3}{4}$"	1.25
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
No. 4S Set in Kit	$4.45

No. 5 Set

S1214—$\frac{7}{16}$-$\frac{3}{8}$"	$0.65
1618—$\frac{1}{2}$-$\frac{9}{16}$"	.90
2022—$\frac{5}{8}$-$\frac{11}{16}$"	1.10
2425—$\frac{3}{4}$-$\frac{25}{32}$"	1.40
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
No. 5 Set in Kit	$5.65

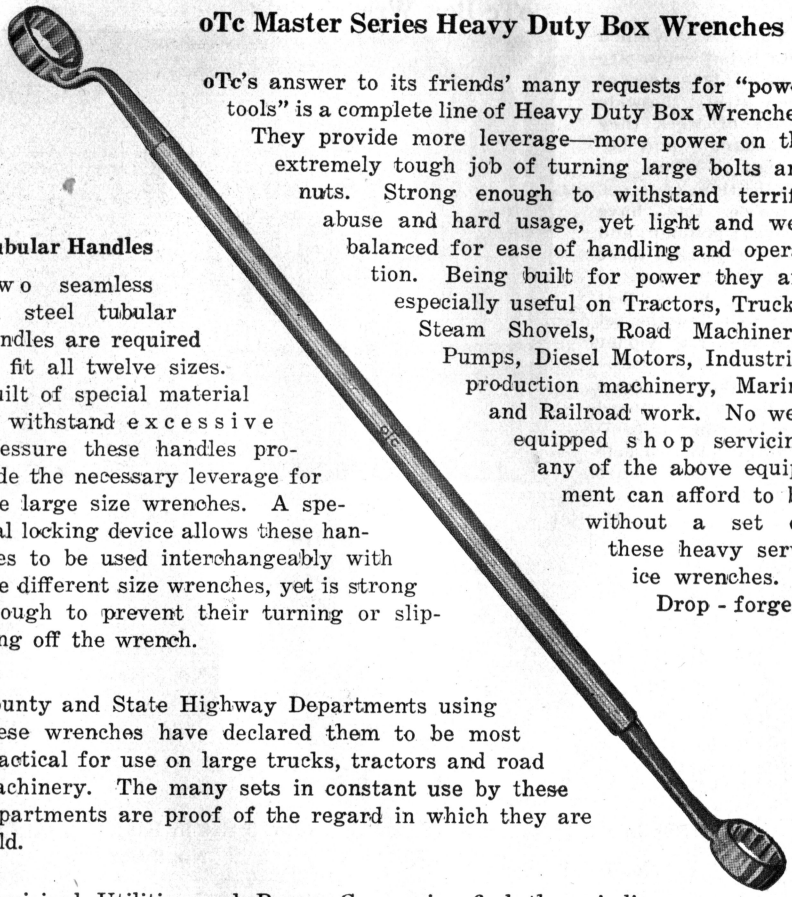
No. 8 Set

S1214—$\frac{7}{16}$-$\frac{3}{8}$"	$0.65
1618—$\frac{1}{2}$-$\frac{9}{16}$"	.90
2022—$\frac{5}{8}$-$\frac{11}{16}$"	1.10
2425—$\frac{3}{4}$-$\frac{25}{32}$"	1.40
2628—$\frac{13}{16}$-$\frac{7}{8}$"	1.60
3034—$\frac{15}{16}$-1$\frac{1}{16}$"	2.20
3236—1-1$\frac{1}{8}$"	2.30
3840—1$\frac{3}{16}$-1$\frac{1}{4}$"	2.75
No. 8 Set in Kit	$12.90

The oTc trade mark is your guarantee of quality.

oTc Master Series Heavy Duty Box Wrenches

oTc's answer to its friends' many requests for "power tools" is a complete line of Heavy Duty Box Wrenches. They provide more leverage—more power on the extremely tough job of turning large bolts and nuts. Strong enough to withstand terrific abuse and hard usage, yet light and well balanced for ease of handling and operation. Being built for power they are especially useful on Tractors, Trucks, Steam Shovels, Road Machinery, Pumps, Diesel Motors, Industrial production machinery, Marine and Railroad work. No well equipped shop servicing any of the above equipment can afford to be without a set of these heavy service wrenches. Drop - forged.



Tubular Handles

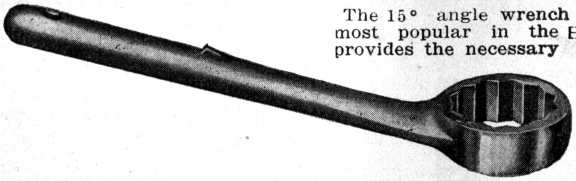
Two seamless all steel tubular handles are required to fit all twelve sizes. Built of special material to withstand excessive pressure these handles provide the necessary leverage for the large size wrenches. A special locking device allows these handles to be used interchangeably with the different size wrenches, yet is strong enough to prevent their turning or slipping off the wrench.

County and State Highway Departments using these wrenches have declared them to be most practical for use on large trucks, tractors and road machinery. The many sets in constant use by these departments are proof of the regard in which they are held.

Municipal Utilities and Power Companies find them indispensable in the servicing and overhauling of Diesel Engines, Pumps and Generators where great power is necessary in cinching or breaking loose large bolts and nuts.

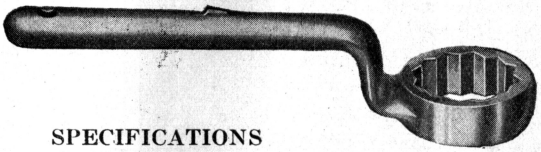
Transportation Companies and others operating heavy equipment will find a complete set of these wrenches a time saving factor that should not be overlooked.

While the straight type wrench provides no clearance for obstructions, it is, nevertheless, a very practical wrench where work is accessible.



The 15° angle wrench has been proven the most popular in the Heavy Duty Series. It provides the necessary clearance for work when obstructions must be considered and at the same time permits a straight, efficient pull. Undoubtedly the most practical of the three types.

The 2" Double Offset type wrench is popular where extra clearance is needed close to the work. There are many instances where this type of wrench would be very necessary.



SPECIFICATIONS

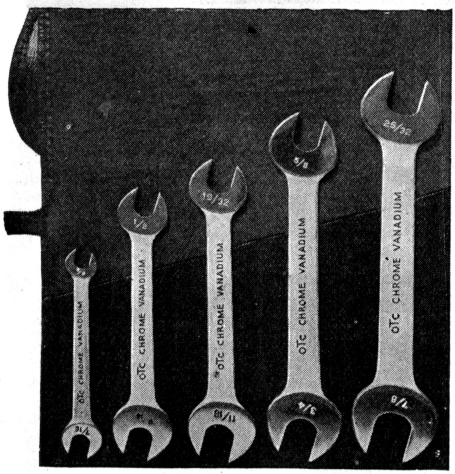
Opening Size	Head Thickness	Shank Size	For Handle No.	Straight No.	Straight Price	15° Offset No.	15° Offset Price	Double Offset No.	Double Offset Price
1¼"	11/16"	⅞"	M-28	MS-40	$1.75	MA-40	$1.75	MO-40	$2.00
1 5/16"	11/16"	⅞"	M-28	MS-42	$2.25	MA-42	$2.25	MO-42	$2.50
1⅜"	11/16"	⅞"	M-28	MS-44	$2.75	MA-44	$2.75	MO-44	$3.35
1 7/16"	13/16"	⅞"	M-28	MS-46	$2.75	MA-46	$2.75	MO-46	$3.35
1½"	13/16"	⅞"	M-28	MS-48	$3.00	MA-48	$3.00	MO-48	$3.60
1⅝"	1 "	1 "	M-32	MS-52	$3.45	MA-52	$3.45	MO-52	$4.35
1¾"	1 "	1 "	M-32	MS-56	$3.65	MA-56	$3.65	MO-56	$4.55
1 13/16"	1 1/16"	1 "	M-32	MS-58	$3.75	MA-58	$3.75	MO-58	$4.65
1⅞"	1 1/16"	1 "	M-32	MS-60	$4.50	MA-60	$4.65	MO-60	$5.40
2 "	1⅛"	1 "	M-32	MS-64	$4.50	MA-64	$4.65	MO-64	$5.40
2 3/16"	1⅛"	1 "	M-32	MS-70	$4.90	MA-70	$5.10	MO-70	$5.80
2¼"	1¼"	1 "	M-32	MS-72	$4.90	MA-72	$5.10	MO-72	$5.80

TUBULAR HANDLES FOR MASTER BOX WRENCHES

Handle No.	Length	Outside Dia.	Inside Dia.	Price
M-28	24"	1⅛"	⅞"	$2.75
M-32	30"	1¼"	1 "	$3.75

oTc Open End Wrenches

oTc Open End Wrenches are made of a special analysis Chrome Vanadium steel and heat treated to give maximum strength and toughness. They are perfectly balanced, finely finished and designed with a view to cover a great variety of work. The thin jaws are pear shaped and milled with care in order to assure a perfect fit.



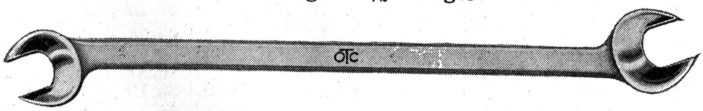
No.	Length	Size of Openings	Price Each
E1214	4⅞"	⅜" - 7/16"	$0.45
E1416	6½"	7/16" - ½"	.50
E1618	6⅜"	½" - 9/16"	.55
E1820	7¼"	9/16" - ⅝"	.65
E1922	7⅜"	19/32" - 11/16"	.70
E2024	8⅜"	⅝" - ¾"	.75
E2528	9⅜"	25/32" - ⅞"	1.15
E3032	10¾"	15/16" -1 "	1.70
E3440	12¼"	1 1/16" -1¼"	1.90
E3640	12¼"	1⅛" -1¼"	1.95

oTc Open End Wrench Sets

E-5—Set, one each 1214, 1618, 1922, 2024, 2528 ..... **$3.60**
E-6—Set, one each 1214, 1618, 1922, 2024, 2528, 3032 ..... **5.30**
E-7—Set, one each 1214, 1618, 1922, 2024, 2528, 3032, 3440 ..... **7.20**
E-8—Set, one each 1214, 1618, 1922, 2024, 2528, 3032, 3440, 3640 ..... **9.15**

Extra Length Open End Wrenches

16" Long—22½° Angle



Especially designed to work on anchor nuts on Bendix and other mechanical brakes, both internal and external. Six popular sizes make these wrenches particularly practical for use on trucks, tractors and other heavy duty work. The extra long handles supply ample leverage for hard pulls. Plated finish.

Item No.	Opening Size	Length	Price
E2428	¾" - ⅞"	16"	$2.05
E3034	15/16" -1 1/16"	16"	2.25
E3236	1" -1⅛"	16"	2.25

oTc Obstruction Wrenches

An open end wrench built to get into difficult places. One end is set at 90 degrees and the other at 45 degrees angle to the handle. Especially adapted for use on hydraulic brakes.

Item No.	Size of Openings	Length	Price Each
B-12	3/8"	5 1/2"	$0.55
B-14	7/16"	5 1/2"	.60
B-16	1/2"	6 1/2"	.65
B-18	9/16"	6 1/2"	.70
B-20	5/8"	7 1/2"	.75
B-24	3/4"	7 1/2"	.85

B-6—Set of Six Above $4.10

oTc Combination Wrenches

An indispensable set that combines the utility and many advantages of the Box Wrench with the accessibility and usefulness of the Open End Wrench.

No.	Opening	Length	Price
C-14	7/16"	5 "	$0.65
C-16	1/2"	5 1/2"	.75
C-18	9/16"	6 "	.85
C-20	5/8"	6 1/2"	1.00
C-22	11/16"	7 "	1.00
C-24	3/4"	7 1/2"	1.10

C-4—Set of four, C-14, C-16, C-18, C-20 ..... $3.25
C-6—Set of six above 5.35

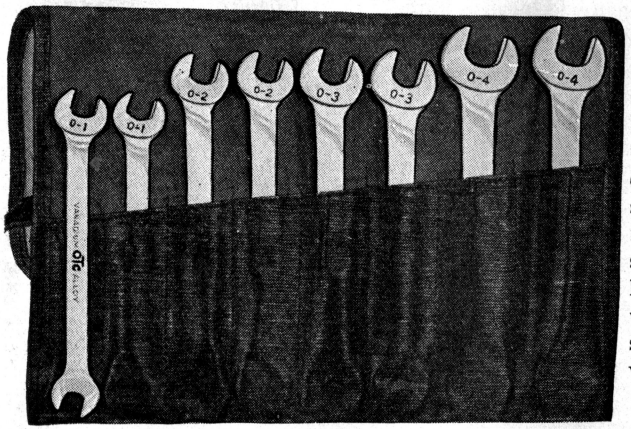
oTc Ignition Wrenches

These midget wrenches are for use on magnetos, distributors, and other electrical work. Different openings on each end, yet each size is duplicated on a separate wrench at a different angle to meet all conditions. Drop forged.

Item No.	Openings 15°	Openings 60°	Head Thickness	What They Take	Price
5	13/64"	15/64"	7/64"	Auto Lite	$0.45
6	15/64"	13/64"	7/64"	Bosch	.45
7	7/32"	1/4"	7/64"	Delco	.45
8	1/4"	7/32"	7/64"	Remy	.45
9	9/32"	5/16"	1/8"	Eiseman	.50
10	5/16"	9/32"	1/8"	Remy	.50
11	11/32"	3/8"	9/64"	German Bosch	.55
12	3/8"	11/32"	9/64"	General	.55

M-8—Set of 8 Wrenches $3.90

oTc Tappet Wrenches



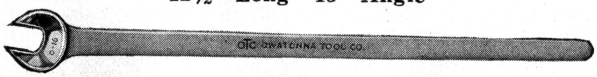
A scientifically balanced tool that embodies every advanced feature in design and construction. Accurately milled to size and individually tempered, these wrenches will not spread under severe strain.

No.	Length	Size Opening	Price
O-1	7″	$\frac{17}{32}$″-$\frac{7}{16}$″	**$0.60**
O-2	8″	$\frac{1}{2}$″-$\frac{9}{16}$″	**.65**
O-3	8″	$\frac{5}{8}$″-$\frac{11}{16}$″	**.70**
O-4	9″	$\frac{3}{4}$″-$\frac{7}{8}$″	**.80**

No. O-5 Set—two each O-1 and O-2 in kit **$2.50**
No. O-6 Set—two each O-1, O-2, O-3 in kit **3.90**
No. O-8 Set—two each O-1, O-2, O-3, O-4 in kit **5.50**

Extra Length Tappet Wrenches

12½″ Long—15° Angle



Designed particularly for use on Plymouth, DeSoto, Dodge and Hupmobile where it is impossible to use a short wrench. Can also be used to advantage on other makes of cars. Long enough to clear hot manifolds and other obstructions. Heads are pear shaped and $\frac{3}{16}$″ thick with a 15° angle for maximum efficiency. Plated finish.

Item No.	Opening Size	Length	Price
O-14	$\frac{7}{16}$″	12½″	**$0.90**
O-16	$\frac{1}{2}$″	12½″	**.90**
O-18	$\frac{9}{16}$″	12½″	**.90**
O-20	$\frac{5}{8}$″	12½″	**.95**
O-22	$\frac{11}{16}$″	12½″	**.95**

oTc Super Pilot Reamer

Seven blades cutting at an angle assure a smooth, shearing cut with no possibility of chatter.

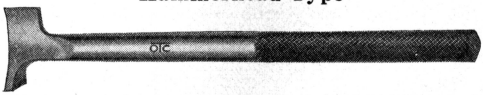
The long, fixed pilot, is part of the reamer body and is carefully machined and ground, assuring perfect alignment.

The double end taper guide, one end of which is recessed to permit end of blades to enter guide, permits of reaming both long and short bushings accurately, and in Piston Pin and King Bolt work reams both holes in perfect alignment.

Item No.	Size	Price	Item No.	Size	Price
R1618	1/2" to 9/16"	$5.60	R3032	15/16" to 1 "	$7.00
R1820	9/16" to 5/8"	5.75	R3234	1 " to 1 1/16"	7.50
R2022	5/8" to 11/16"	5.90	R3436	1 1/16" to 1 1/8"	7.75
R2224	11/16" to 3/4"	6.05	R3640	1 1/8" to 1 1/4"	8.35
R2426	3/4" to 13/16"	6.20	R4044	1 1/4" to 1 3/8"	8.65
R2628	13/16" to 7/8"	6.35	R4448	1 3/8" to 1 1/2"	9.20
R2830	7/8" to 15/16"	6.50	R4852	1 1/2" to 1 5/8"	9.85

oTc Offset Screw Drivers

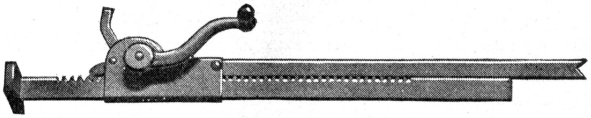
Hammerhead Type



The offset Screw Driver of the hammerhead type with bits at right angles to each other is considered the most practical and efficient in this kind of tool. It makes reaching inaccessible screws a simple operation.

Item No.	Bit	Length Over-All	Price
730	5/16"	3 1/2"	$0.45
731	3/8"	6 "	.50
732	1/2"	8 "	.90

No. 850 Pedal Jack



Designed for holding brake pedal in any desired position while making brake adjustments. It is put into place by putting the base or T against the heel board and the notched or V end against the pedal. Turn the crank that operates the pinion and rack to bring the pedal to desired position. Has a positive, automatic lock.

Very useful when removing or replacing oil pan. Can be used on all split type tire rims.

Can be used to check looseness of main bearings by running notched end under the crank shaft and using a gentle back and forth motion of the crank to indicate the amount of looseness.

No. 850 Pedal Jack $2.50

oTc Superloid Screw Drivers

The Bit is Heat Treated to give strength and toughness. Will not twist or break under severe strain.

The entire shank is forged from a special analysis Vanadium Steel, is tempered to withstand twisting and will not bend.

The hexagon ferrule is upset-forged as an integral part of the shank and is accurate as to size in order that a Box Wrench may be used for additional power.

The Handle is a lustrous Black Superloid, grooved and knurled to prevent the hand from slipping, it is possible to get a firm grip even though the hand may be greasy. **oTc** Superloid Handles are Shockproof and will resist pounding and abuse as no other Handle made. Shanks highly polished plated finish.

Item No.	Size Bit	Length Over-All	Price
720	$\frac{9}{32}$″	9″	**$1.25**
721	⅜″	12″	**1.50**
722	½″	15″	**1.90**

oTc Stubby Screw Driver

Shorter, tougher and better than ever. A Screw Driver built to get into tight places and to stand plenty of hard usage. Shock proof, indestructible, knurled handle that is large enough to afford a good grip.

No. 723—⅜″ Bit, 4″ OA..... **$1.00**

Superloid Square Shanks

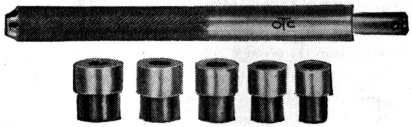
A new **oTc** product designed to give a maximum of service and efficiency at a minimum cost. Through the use of the **oTc** Superloid carrying the traditional **oTc** design we have evolved a shock-proof, indestructible handle that can be gripped without fear of shock or slipping.

A solid square shank forced into the handle at great pressure prevents the handle from turning on the shank. Shanks are forged from a special Chrome Vanadium Screw Driver Steel and tempered in electrically controlled furnaces.

Built for service and long wear in popular sizes only and priced right.

Item No.	Length of Blade	Size Square Stock	Length Over All	Price
736	3 ″	⅛″	4¼″	**$0.45**
737	6 ″	$\frac{3}{16}$″	9½″	**.75**
738	9 ″	$\frac{3}{16}$″	12½″	**.85**
739	1¼″	¼″	3¼″	**.75**
740	6 ″	¼″	10 ″	**1.00**
741	10 ″	¼″	14 ″	**1.15**
742	12 ″	$\frac{5}{16}$″	16½″	**1.30**

oTc Bushing Driver Set



The large variety of replaceable bushings used on Automobiles, Trucks, Tractors and Electrical Motors calls for a number of Bushing Tools that will remove the old Bushing quickly and install a new one without damage to the Bushing.

The Bushing Driver Set listed here is a real time saver. It consists of a complete range of sizes of Step Collars to handle Bushings on Tie Rods, Spindles, Water Pumps, Pistons, Connecting Rods, Generators, Steering Gears, Distributors, Transmissions, Spring Bushings, etc.

Step Collars and Drivers are built of Chrome Alloy Steel, machined to size and tempered to give long service. Compression ball on Driver holds Step Collar securely in place. Plated finish.

Item No.	Inside Bushing Diameter	Outside Bushing Diameter	Price
800	1/2"	5/8"	$0.25
801	9/16"	11/16"	.25
802	5/8"	3/4"	.25
803	11/16"	13/16"	.25
804	3/4"	7/8"	.25
813	5/8" Mandrel to fit above sizes		.75
806	13/16"	15/16"	.40
807	7/8"	1 "	.40
808	15/16"	1 1/16"	.40
809	1 "	1 1/8"	.40
810	1 1/16"	1 3/16"	.40
811	1 1/8"	1 1/4"	.40
814	7/8" Mandrel to fit above 6 sizes		1.00
803-C	23/32"	27/32" (Chev. King Pins)	.25

No. 816 Bushing Set—800 to 804 Collars and 813 Mandrel $2.00

No. 817 Bushing Set—806 to 811 Collars and 814 Mandrel 3.40

No. 818 Bushing Set—12 Sizes, 2 Mandrels 5.65

No. 890 Metal Case ..... .60

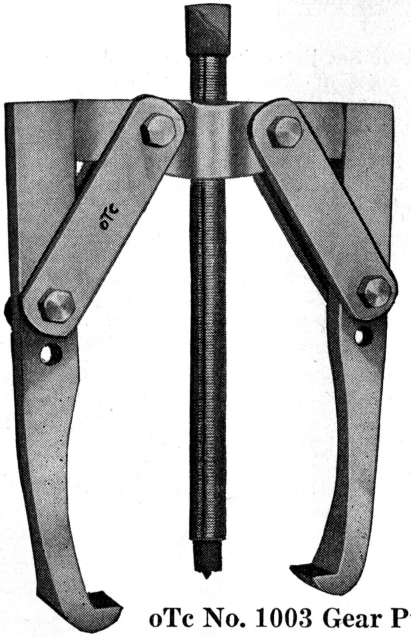
oTc Gear Pullers

oTc Gear Pullers are recognized the entire country over as the ultimate in design, material and strength. The number of oTc Gear Pullers in actual use in the thousands of shops throughout the United States is ample proof of the high regard in which they are held by the men of the automotive repair industry.

Gear Pullers are necessities in every shop and it is essential that every shop have a good dependable Puller on which it can rely. The oTc Gear Puller combines all the outstanding features required in a tool of this kind.

Their patented gripping feature positively prevents the Jaws from slipping off the work. The Jaws are thin to allow working in close quarters and no adjustments are necessary, no extra equipment is needed to hold them in place.

The Nut, Screw and Jaws are forged from a very high grade of Chrome Vanadium Steel and heat treated by special process to insure great strength. Plated.



oTc No. 1003 Gear Puller

For work on cars, trucks, tractors, engines, heavy machinery, etc. Equipped with single end heavy duty jaws only.

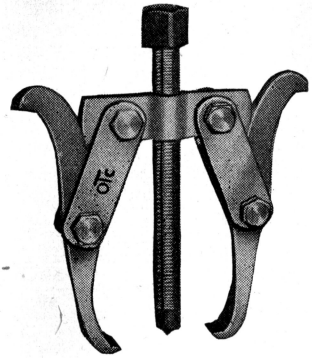
This puller is built for very heavy duty and will pull gears that would tax the capacity of a 20 ton press.

Size of screw, ¾" diameter by 12" long. Spread of jaws, 12".

Length of jaw from block to hook, 9".

Jaw, each	$3.00	Screw, 12" each	$ 4.00
Nut, each	4.00	No. 1003 Gear Puller	15.00

oTc No. 1001 Gear Puller



Is particularly adapted to pulling generator gears, ball races, timing gears and small pinions. Equipped with one double end pair of jaws, having wide thin hooks on one end and narrow thick hooks on the other. Plated.

Size of screw, ½" diameter by 6" long.

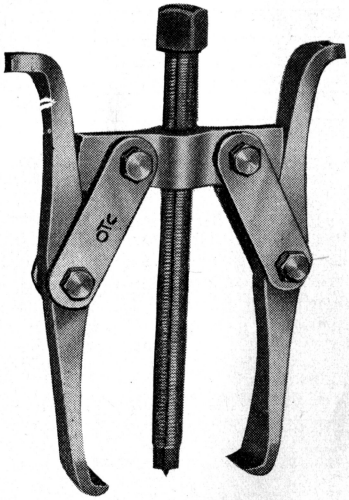
Spread of jaws, 0 to 6".

Length of jaw from block to hook, 3½".

Jaws, each	**$1.25**
Screw, each	**1.00**
Nut, each	**1.25**
No. 1001 **oTc** Gear Puller	**5.00**

oTc No. 1002 Gear Puller

This is an "all purpose" tool and will handle a very wide range of work. The pulling arms are "reversible," one end having wide thin hooks to get behind gears in close quarters, the other end has slotted hooks for pulling gears which are tapped for cap screws. Plated.



Size of screw, ⅝" diameter by 9" long.

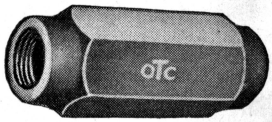
Spread of jaws, 8".

Length of jaws from block to hook, 5½".

Jaw, each	**$ 2.00**
Screw, each	**2.00**
Nut, each	**3.00**
No. 1002 **oTc** Gear Puller	**10.00**

oTc Gear Pullers are Cheapest in the long run.

oTc Super Knock-Off Wheel Pullers



Properly used the **oTc** Knockoffs will do a quick efficient job on 98% of all cars, without danger of damage to rear axle parts. Built from good solid Chrome Alloy Steel, and heat treated all the way through, these pullers will give exceptional service. They are fully tapped to the bottom, which eliminates the possibility of upsetting the axle or ruining the threads on the axle or in the puller.

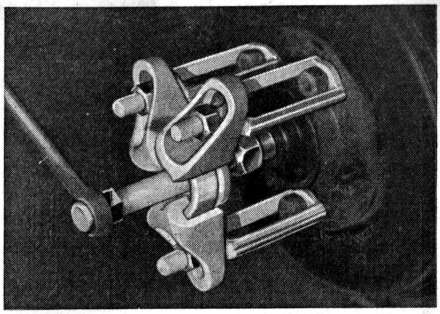
Item No.	Size	Length	Price
K-20	5/8" SAE	3½"	**$0.85**
K-24	3/4" SAE	3½"	**.95**
K-28	7/8" SAE	3½"	**1.05**
K-32	1 " SAE	3½"	**1.15**
K-36	1⅛" SAE	3½"	**1.25**
K-40	1¼" SAE	2½"	**2.00**
K-48	1½" SAE	2½"	**2.50**
K-25	3/4" 20 Thread	3½"	**1.00**
K-26	13/16" 16 Thread	3½"	**1.00**
K-29	7/8" 18 Thread	3½"	**1.25**
K-41	1¼" USS	2½"	**2.00**

oTc Axle Protectors

Built to protect the threads and end of axle where great pressure is applied. Can be used to advantage when pulling hubs or gears. These Protectors eliminate the danger of swaging or upsetting the end of the shaft. Your insurance against the loss of time and the expense entailed in the damaging of parts. Chrome Vanadium Steel, plated.

Item No.	Size	Price	Item No.	Size	Price
AP-20	5/8" SAE	**$0.35**	AP-48	1½" SAE	**$0.65**
AP-24	3/4" SAE	**.35**	AP-25	3/4" 20 Thread	**.45**
AP-28	7/8" SAE	**.45**	AP-26	13/16" 16 Thread	**.45**
AP-32	1 " SAE	**.45**	AP-29	7/8" 18 Thread	**.45**
AP-36	1⅛" SAE	**.55**	AP-41	1¼" USS	**.55**
AP-40	1¼" SAE	**.55**			

oTc Universal Hub Puller



This Hub Puller can be adjusted to handle any car or light truck, whose Hub Bolt circle does not exceed 7½ inches. It is easily adjusted and quickly adapted to any Hub regardless of the number of wheel studs used. Because of its exceptionally wide range of service it is an invaluable tool in every repair shop, brake shop, and other specialized service stations. Complete in itself. No additional equipment is necessary. No collets or adaptors. A tremendous amount of pressure can be exerted without pounding. The pull is straight thereby eliminating the danger of bending or distorting the wheel lugs. There is NO Hub within its range too difficult for this Puller to remove.

No. 826 Universal Hub Puller **$14.75**

oTc Tie Rod Adjusting Tool

Designed to work in close quarters this tool works perfectly where adjusting Tie Rods on all late model cars. The double end offset bits are closely coupled and accurately milled to size. Works exceptionally well on V8 Fords and can also be used to remove and replace shock absorber filler plugs on Chevrolet and Pontiac. Drop forged. Plated finish.

No. 833 ..... **$0.75**

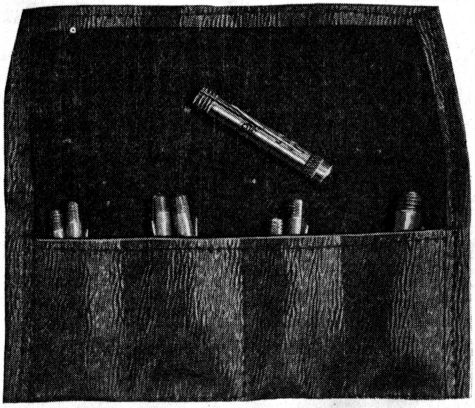
oTc Pan Holder Studs

Real time savers. Screw one into each side of upper crank case to guide and hold crank case in place while replacing bolts. Plated.

Item No.	Size	Price each
878	¼" USS	$0.25
879	5/16" SAE	.25
880	5/16" USS	.25
881	⅜" USS	.25

Set of Two **$0.50**

No. 882—Set of 8 in Kit **2.00**



oTc Combination Gauge

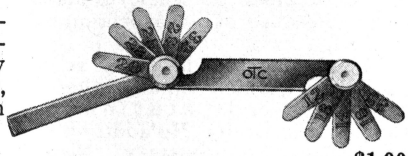
(Not illustrated)

A combination feeler and thickness gauge. Contains 10 feeler blades from .002 to .013 and 10 thickness blades for ignition work from .012 to .032. Also contains a point file. A two-in-one gauge for the efficient mechanic. Knurled lock nuts on each end permit a rapid selection of the size desired.

No. 864—Combination Gauge $1.75

oTc Ignition Gauge

An extremely handy gauge for adjusting spark plugs, ignition and distributor points. Ten small, accurately ground blades: .012, .013, .014, .018, .020, .022, .025, .028, .032, .035 and a high grade 3″ point file.



No. 862—Ignition Gauge $1.00

Extra Blades ..... .15 No. 863—File only ..... .20

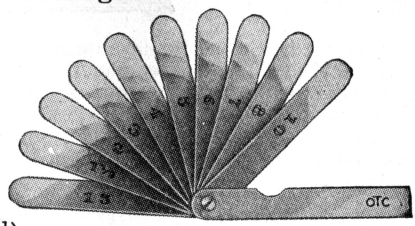
oTc Chevrolet Thickness Gauge

A gauge built of imported heat treated steel and rigidly tested for accuracy. Designed particularly for work on Chevrolet. Contains the following sizes: Three .006 blades, two .008 blades, one .013 blade, one each .018, .024, .032 and .035.

No. 524—Chevrolet Thickness Gauge $1.00

oTc Thickness Gauge

A high grade tool of tested accuracy. Blades made from imported heat treated steel 3½″ long and with sizes etched on each blade. Equipped with knurled nut to permit rapid selection of blade desired and to lock other blades not in use firmly inside the handle. Contains 10 blades .002″, .003″, .004″, .005″, .006″, .007″, .008″, .010″, .012″, .013″.



No. 860—Thickness Gauge (as pictured) $1.00

Extra Blades. Above sizes, .015, .016 and .020″. Each ..... .15

Thickness Gauge Stock

In Metal Box

Twenty-five Foot Lengths—½″ Width

Size	Price	Size	Price
.0015	$6.00	.007	$2.25
.002	4.15	.008	2.25
.003	3.95	.009	2.25
.004	2.35	.010	2.00
.005	2.00	.012	1.85
.006	1.95	.013	1.85

12″ of any above sizes $0.25

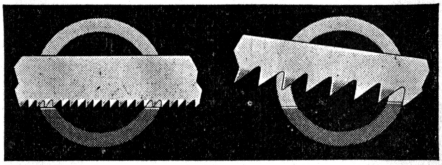
18″ of any above sizes ..... .40

*Silver Steel Hacksaw Blades

These blades, made of high speed steel, are guaranteed to cut more metal than any other blade. They will actually last longer and give more service under severe conditions. They are easier to use because they cut faster and exactly for these reasons Silver Steel Blades are more economical in the long run.

They can be purchased in 18, 24 and 32 tooth blades and only in the 10″ length as follows:

1 Silver Steel Blade, each $0.30
½ doz. Silver Steel Blades 1.80
1 doz. Silver Steel Blades 3.30

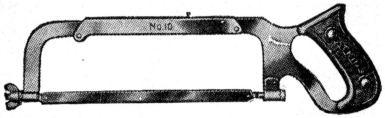


Use the Right Blade

It is very important when using Hacksaw Blades, for best efficiency to use a blade with the proper number of teeth per inch for the material to be cut. Two or more teeth cutting at all times as illustrated.

*oTc Hack Saw Frame

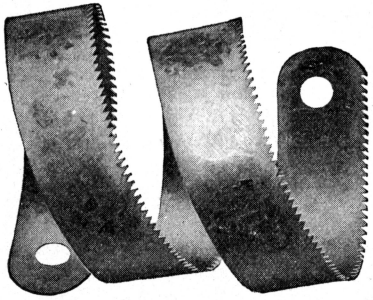
Perfectly balanced to direct entire stroke on cutting edge. Fitted with large non-breakable hard rubber pistol grip handle. Gives perfect control. Frame adjustable for 8″ to 12″ blades. Adjustable for cutting at four different angles.



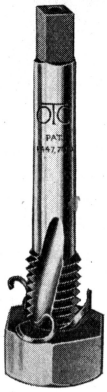
No. 820—Hack Saw Frame $2.25

oTc Hack Saw Blades

An exceptionally good blade for garage use. Double heat treated to give a hard tooth and flexible back, to avoid breaking or tearing out teeth. Made in 18-tooth for cast iron and mild steel, 24-tooth for steel and general purpose work and 32-tooth for tubing and sheet metal in 10″ and 12″ lengths.



Amount	Length	Price
½ Doz.	10″	$0.45
1 Doz.	10″	.80
3 Doz.	10″	2.30
½ Gross	10″	4.50
1 Gross	10″	8.50
½ Doz.	12″	$0.55
1 Doz.	12″	1.00
3 Doz.	12″	2.90
½ Gross	12″	5.50
1 Gross	12″	10.80



*oTc Drill Flute Taps

The new Drill Flute Taps are the latest development in Taps. Operating on the same principle as the Twist Drill and the Spiral Flute Reamer. They START EASY because of the specially shaped point. They CUT EASY because of the SHEARING ACTION of the Drill Flute. They cut in one, continuous, forward movement. They DON'T CLOG because chips are carried to the surface. This eliminates broken taps. ECONOMICAL because they cost no more and are longer lived.

Item No.	Size	Price	Item No.	Size	Price	Item No.	Size	Price
*2200	6-32	$0.20	*2210	$\frac{5}{16}$"-18-NC	$0.35	*2310	$\frac{5}{16}$"-24-NF	$0.35
2201	4-40	.20	*2212	$\frac{3}{8}$"-16-NC	.40	*2312	$\frac{3}{8}$"-24-NF	.40
*2202	8-32	.20	2214	$\frac{7}{16}$"-14-NC	.40	*2314	$\frac{7}{16}$"-20-NF	.40
2203	6-40	.20	2216	$\frac{1}{2}$"-13-NC	.40	2316	$\frac{1}{2}$"-20-NF	.40
*2204	10-24	.25	2218	$\frac{9}{16}$"-12-NC	.60	2318	$\frac{9}{16}$"-18-NF	.60
2205	8-36	.20	2220	$\frac{5}{8}$"-11-NC	.70	2320	$\frac{5}{8}$"-18-NF	.70
*2206	12-24	.25	2222	$\frac{11}{16}$"-11-NC	.80	2322	$\frac{11}{16}$"-16-NF	.80
2207	10-32	.25	2224	$\frac{3}{4}$"-10-NC	.90	2324	$\frac{3}{4}$"-16-NF	.90
*2208	¼-20-NC	.30	*2308	¼"-28-NF	.30			

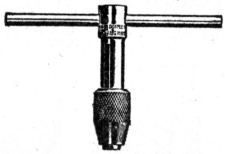
⅛" Pipe Tap $0.30
¼" Pipe Tap ..... .60

*No. 2300 Drill Flute Tap Set

A set of 10 popular sized Taps at an attractive price. Those taps which are starred in the above table are included in this set.

No. 2300—Drill Flute Tap Set (in leatherette kit) $3.00

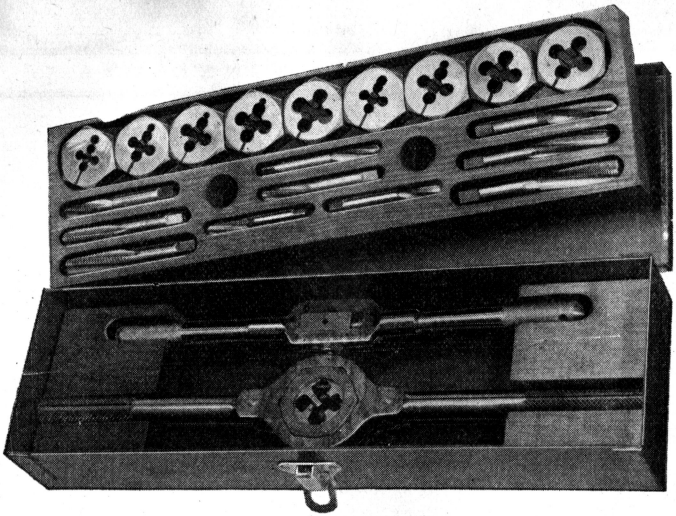
*Tee Handle Tap Wrenches



No. 2250—Capacity No. 4 to No. 10 Machine Screw Taps or $\frac{3}{32}$" to $\frac{5}{16}$" Standard Hand Taps $0.50

No. 2251—Capacity No. 10 to No. 16 Machine Screw Taps or $\frac{3}{16}$" to $\frac{9}{32}$" Standard Hand Taps $0.75

No. 2252—Capacity No. 14 to No. 20 Machine Screw Taps or $\frac{9}{32}$" to ½" Standard Hand Taps $1.00



*oTc Screw Plate Sets

Two Screw Plate Sets are offered for general garage and machine shop work. **oTc** Dies cut clean, accurate threads either undersize or oversize. They cut easily and hold to their adjusted size without variation. Can be adjusted to change actual size from .001 to .003 under or over.

The No. 2080 Screw Plate Set (illustrated above) contains taps and dies from ¼" to ½" NF and NC threads, the No. 2050 Die Stock, No. 2051 Tap Handle in Metal Case No. 2090. No. 2080 Screw Plate Set **$20.00**

The No. 2085 Screw Plate Set includes Taps and Dies from ¼" to ¾" (8 sizes) in both NF and NC Threads. The No. 2050 Die Stock, No. 2052 Tap Handle in the No. 2091 Metal Case.

No. 2085 Screw Plate Set (not illustrated) **$34.60**

Dies

Item No.	Size	Price	Item No.	Size	Price
2008	¼"-20-NC	**$1.25**	2108	¼"-28-NF	**$1.25**
2010	5/16"-18-NC	**1.25**	2110	5/16"-24-NF	**1.25**
2012	⅜"-16-NC	**1.25**	2112	⅜"-24-NF	**1.25**
2014	7/16"-14-NC	**1.25**	2114	7/16"-20-NF	**1.25**
2016	½"-13-NC	**1.25**	2116	½"-20-NF	**1.25**
2018	9/16"-12-NC	**1.25**	2118	9/16"-18-NF	**1.25**
2020	⅝"-11-NC	**1.25**	2120	⅝"-18-NF	**1.25**
2022	11/16"-11-NC	**1.25**	2122	11/16"-16-NF	**1.25**
2024	¾"-10-NC	**1.25**	2124	¾"-16-NF	**1.25**

⅛" Pipe Die ..... **$1.25** ¼" Pipe Die **$1.25**

No. 2050—Adjustable Guide Die Stock 14" **1.80**

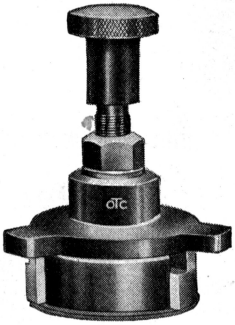
No. 2051—11" Tap Handle No. 10 M. S. to ½" cap. **3.00**

No. 2052—15" Tap Handle ¼" to ¾" cap. **1.90**

No. 2090—Metal Case (illustrated above) **1.90**

No. 2091—Metal Case (for No. 2085 Set) **3.00**

oTc Super Ridge Reamer

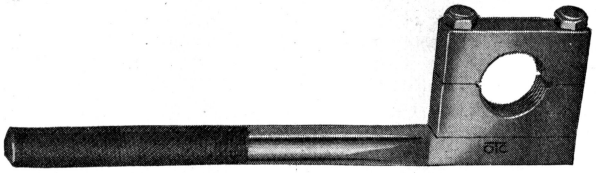


An expanding type tool, built to remove the ridge or unworn part at the top of cylinders, quickly and efficiently without scratching or scouring. It has three expanding cutters, the bottom portions of which, acting as guides, prevent removing too much metal. Guides follow cylinder wall and cutters will remove metal only where necessary to conform to the rest of the cylinder. To adjust—remove knob and turn the square adjusting screw to the right. Slight pressure on the knob when operating will hold the tool firmly in place and prevent chattering. As the unworn ridges are of different depth or width the operator should use care in order to stop cutting as soon as the ridge is gone. Taking heavy cuts or turning the tool backward should be avoided. A valuable tool and indispensable in motor reconditioning. Built for long service.

Capacity 3″ to 4″

No. 855—Super Ridge Reamer **$6.00**
Extra Cutters. Set of 3 ..... **2.00**

oTc Unit Thread Chaser



An extremely practical tool for straightening battered or deformed threads on axle shafts, drive shafts, cam shafts, etc. All dies are interchangeable on handle. Dies may be purchased separately or in sets. Plated finish.

Item No.	Size	Price	Item No.	Size	Price
TC-20	5/8″ SAE	**$1.00**	TC-48	1½″ SAE	**$1.00**
TC-24	¾″ SAE	**1.00**	TC-25	¾″ 20 Thread	**1.00**
TC-28	⅞″ SAE	**1.00**	TC-26	13/16″ 16 Thread	**1.00**
TC-32	1 ″ SAE	**1.00**	TC-29	⅞″ 18 Thread	**1.00**
TC-36	1⅛″ SAE	**1.00**	TC-41	1¼″ USS	**1.00**
TC-40	1¼″ SAE	**1.00**			

TC-10—Handle Only **$0.60**
Handle and One Die **1.60**

Hard Seat Grinding Heads

A valve grinding head is necessary for grinding hard carbon, stellite or other exceptionally hard metal used in the new valve seats. It grinds soft seats as well as hard seats and is invaluable for cutting the glaze from valve seats where nothing else will touch it. The cloth abrasive used can be renewed without loss of time. The use of coal oil freely on the abrasive prevents clogging and lengthens the life of the abrasive.

Item No.	Dia.	Angle	Price
2402	1½"	45°	$1.75
2404	2⅛"	45°	1.75
2405	2⅛"	30°	1.75

Extra Abrasives all sizes fine or coarse, per doz.....$0.50

Hard Seat Grinding Set

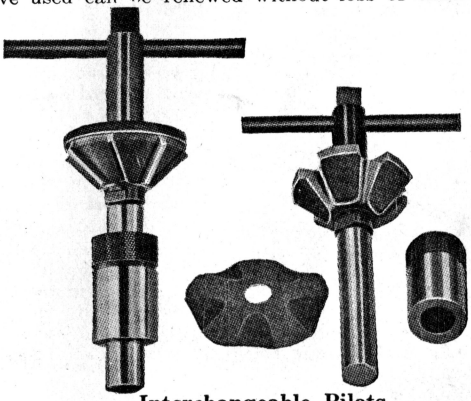
Complete Set for grinding hard seats. Contains three sizes, No. 2402, 2404 and 2405 with 18 pilots as listed with one V8 Ford Pilot Bushing complete in a compact metal case.

No. 2401 Hard Seat Grinding Set in Case.....$13.65
No. 2491 Metal Case..... 2.00

Removable Blade Seat Cutters

These cutters will last indefinitely if used properly. Blades can be resharpened or replaced at a nominal cost if returned to our factory. Each cutter has 7 blades irregularly spaced and set at an angle to prevent chattering. Interchangeable pilots permit the use of all cutters on any make of car. A wonderful value, reasonably priced.

Item No.	Dia.	Angle	Price
2406	1½"	45°	$1.45
2408	1½"	60°	1.45
2410	1½"	30°	1.45
2412	2 "	45°	1.45
2414	2 "	60°	1.45
2416	2 "	30°	1.45
2418	2½"	45°	1.75
2438—V8 Ford Pilot Bushing			.50



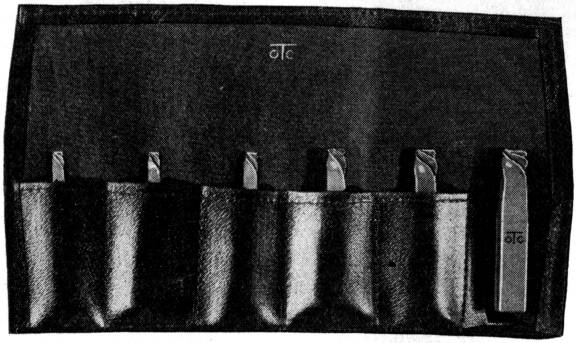
Interchangeable Pilots

Item No.	Size	Price
2420	$\frac{5}{16}$"	$0.25
2421	$\frac{5}{16}$"+.001	.25
2422	$\frac{5}{16}$"+.002	.25
2423	$\frac{5}{16}$"+.003	.25
2424	$\frac{21}{64}$"	.25
2425	$\frac{21}{64}$"+.001	.25
2426	$\frac{21}{64}$"+.002	.25
2427	$\frac{11}{32}$"	.25
2428	$\frac{11}{32}$"+.001	.25
2429	$\frac{11}{32}$"+.002	.25
2430	⅜"	.25
2431	⅜"+.001	.25
2432	⅜"+.002	.25
2433	$\frac{25}{64}$"	.25
2434	$\frac{25}{64}$"+.001	.25
2435	$\frac{25}{64}$"+.002	.25
2436	$\frac{7}{16}$"	.25
2437	$\frac{19}{32}$" Model A. Ford	.25

No. 2400 Reseating Set contains following: 18 Pilots, 1½"-45° or 2⅛"-45° Grinding Head, 2"-45° Cutter, 2"-30° Cutter, 1½"-45° Cutter, 1½"-60° Cutter, V8 Ford Pilot Bushing (in box).....$13.25
No. 2490—Reseating Set Box only..... 1.50

oTc Screw Extractors

oTc Screw Extractors have been very successful. They are extremely tough and practically unbreakable. Made of Chrome-Vanadium, heat treated and guaranteed. Plated finish.



Size No.	For Bolt Diameter	Use Drill Size	Drill Depth	Price
870	5/8" & Up	7/16"	5/16"	**$0.50**
871	1/2" to 5/8"	3/8"	5/16"	**.50**
872	7/16" to 1/2"	5/16"	1/4"	**.50**
873	3/8" to 7/16" Alemite Size	1/4"	1/4"	**.50**
874	5/16" to 3/8"	3/16"	3/16"	**.50**
875	1/4" to 5/16"	5/32"	3/16"	**.50**

No. 876—Set of 4—872, 873, 874, 875 in Kit **$2.00**
No. 877—Set of 6. All Sizes, in Kit **3.00**

oTc No. 865 Dash Cutter

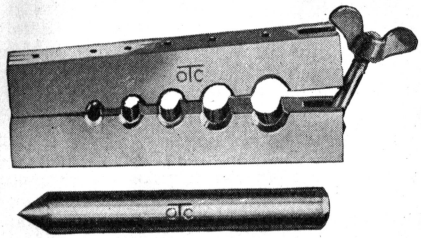
(Not Illustrated)

For cutting holes in metal dash—on automobiles, when installing hot water heaters, radios, etc. Requires drilling a 3/16" hole in dash—the die placed one side of the dash, the punch on the other—the forcing screw passed through both parts and the dash—when turned up cuts a perfect, smooth $1\frac{1}{32}$" round hole in dash. The die section is in two pieces, to facilitate removing the cut slug.

An outstanding tool—made of first quality material, and heat treated to give service.

No. 865 ..... **$3.50**

oTc Pipe Swage

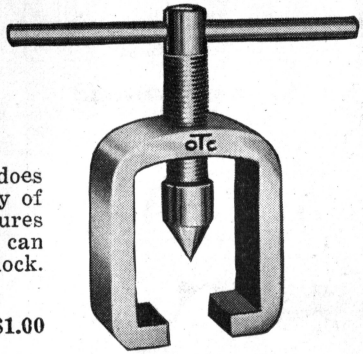


A practical and durable tool for swaging or flaring copper gas or oil lines. Clamps hold tubing firmly in place and eliminate the need for a vise. Sizes of tubes handled are as follows: ¼", 5/16", ⅜", 7/16", ½".

This tool can also be used as a jig for drilling cotter key holes squarely through center of bolts or pins. Plated.

No. 834—Swage Block.....$2.00
No. 835—Swage Punch..... .50

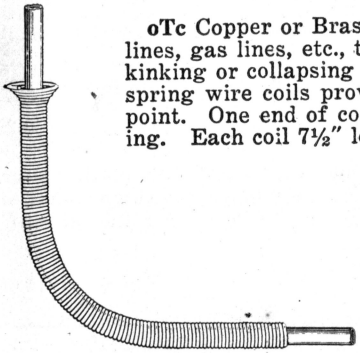
oTc Pipe Flaring Clamp



Used with the **oTc** Pipe Swage this tool does a neat, even job. Eliminates the possibility of splitting the tubing and does a job that insures a perfect fit. No adjustments to make and can be used with almost any other swage block. Plated.

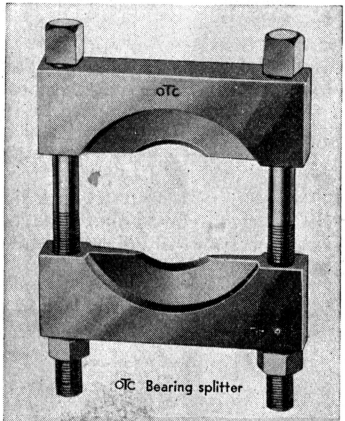
No. 836—Flaring Clamp.....$1.00

†Tube Benders

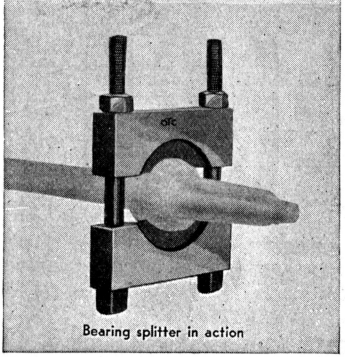


oTc Copper or Brass Tube Benders simplify the bending of oil lines, gas lines, etc., to any desired shape without the danger of kinking or collapsing the tubing. The specially prepared, sturdy spring wire coils provide support for the tubing at the bending point. One end of coil is flared to permit easy insertion of tubing. Each coil 7½" long.

No.	Size	Price
808-B	¼"	$0.30
810-B	5/16"	.35
812-B	⅜"	.40
814-B	7/16"	.45
816-B	½"	.50
821-B—Set of 5 above		$2.00



oTc Bearing splitter



Bearing splitter in action

oTc Bearing Splitter

(Patent Applied For)

Tested and approved by the Timken Roller Bearing Company

For separating and removing Double Timken bearings on Axle Shafts of Chrysler, Dodge, DeSoto, Nash, Plymouth, Erskine, Rockne, and others, efficiently and easily. Can also be used on 1932, 1933 Packards and on Stewart Trucks to take the bearings off the Drive Shaft Pinion.

The sharp edges of the tool are forced between and separate the Bearings when forcing Screws are turned. The Bearings can then be removed from Axle Shaft with an Arbor Press or with attachments listed on opposite page.

This tool eliminates the necessity for breaking one Bearing in order to remove the other. Both of these expensive Bearings can be removed without damage and the tool will pay for itself in Bearings saved in two or three jobs. A valuable and indispensable tool on isolated jobs where parts and service cannot readily be reached. The breaking or damaging of one bearing might necessitate the laying up of valuable equipment until a new part can be obtained from a distant city.

oTc Bearing Splitters separate and remove these bearings and eliminate the danger of a forced layoff that would cost many times the price of the tool.

This tool has been newly designed to permit the use of attachments illustrated on the opposite page. Customers having the style of tool pictured above may have them drilled for attachment at a cost of only 90c or free of charge if attachments are purchased.

No. 904 Bearing Splitter—Capacity Bearings up to 4½" outside diameter.

Price **$9.25**

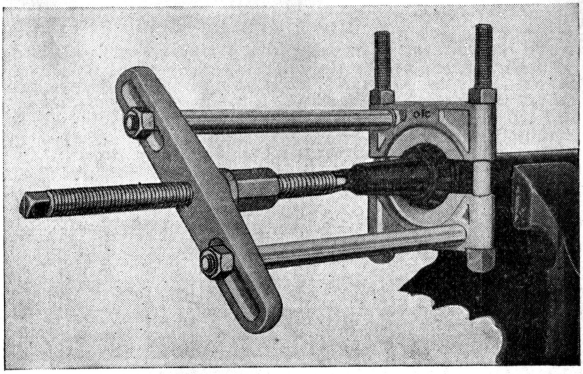
No. 901 Bearing Splitter—Capacity Bearings up to 5¾" outside diameter. Built particularly for service on the large double Timken Bearings found on Trucks, Tractors and Busses. These costly bearings can be removed without damage with this tool.

Price **$15.00**

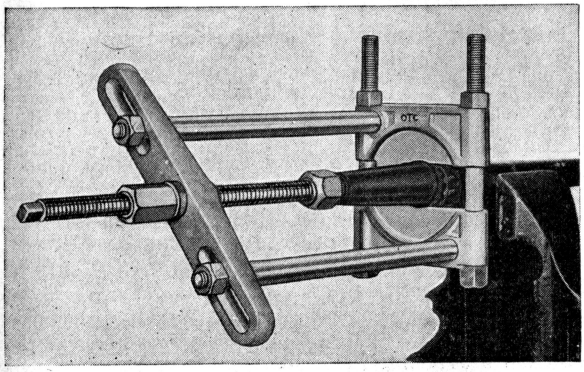
We Pay Postage on all "Paid in Advance" Orders.

Bearing Pullers

This illustration shows the new **oTc** Bearing Puller being used in connection with the No. 904 Bearing Splitter illustrated on the opposite page. The illustration shows this tool pulling the front bearing on an axle shaft. This same set-up is used when pulling on or replacing the rear bearing.



For Use in Removing and Replacing Double Timken Bearings



This picture shows the new Bearing Puller removing the rear bearing by pushing it off. This same set-up is used when installing the front bearing.

The new Bearing Puller is used after the Bearings have been separated with the **oTc** Bearing Splitter. Where large presses are not available a set of this kind is indispensable in any garage servicing Chrysler built cars, International Trucks, etc., where these bearings are used. This combination simplifies the removal and replacement of these bearings without the danger of damaging them.

It can also be used with the No. 951 and No. 952 Gear Puller Attachments illustrated on page 44 since these attachments have been redesigned, to permit use with the Bearing Puller. Used with the **oTc** Gear Puller Attachments this Bearing Puller will pull gears, bearings, pinions, races, etc. Anyone already having the No. 910 Multi-Purpose Puller need not purchase adaptors for the Bearing Puller. Multi-Purpose Puller Adaptors are interchangeable with the No. 912 Bearing Puller.

No. 912 Bearing Puller complete with No. 904 Splitter (as illustrated) **$22.75**
No. 911 Bearing Puller with 6 adaptors ⅝" to 1¼" SAE **13.50**
No. 913 Bearing Puller only (less adaptors and Splitter) **10.50**

oTc Multi-Purpose Puller

(Patent Applied For)

oTc has succeeded in designing a Universal Tool for pulling Drive Shafts, Axles, Cam Shafts, Pinion Shafts and Transmission Shafts, and which can with its various Attachments, be adapted for use on a great many jobs, a few of which are illustrated on the opposite page. Because it handles this work on practically every make of car and truck it is an essential piece of equipment for every service shop. Adjustable legs, detachable adaptors and attachments permit of quick easy operation on a wide variety of heretofore difficult jobs. Plated finish.

No. 910—Multipurpose Puller with 6 Adaptors $11.00

No. 990—Metal Case for above 1.50

Extra Adaptors

Item No.	Size	Price	Item No.	Size	Price
920	5/8" SAE	$0.40	948	1½" SAE	$0.75
924	3/4" SAE	.40	925	3/4" 20 Thread	.50
928	7/8" SAE	.50	926	13/16" 16 Thread	.50
932	1 " SAE	.50	929	7/8" 18 Thread	.50
936	1⅛" SAE	.60	941	1¼" USS	.60
940	1¼" SAE	.60	949	1½" USS	.75

oTc Timken Cup Puller Attachment

(Patent Applied For)

Designed to assure a positive grip without slipping, the jaws of the tool conform to the curves of the Timken Cups they are to pull. It can be adapted for use on many other inside pulling jobs. The jaws may also be reversed and used as a Gear Puller or Bearing Puller. Pulls all Timken Cups from Axle Housings in Chevrolet, Dodge, Plymouth, Chrysler, De Soto, Nash, Hupmobile and many other makes of cars and trucks. Capacity Timken Cups 1¾" to 4¾" inside diameter. Plated finish.

No. 942—Equipped with 7" Jaws $9.75

Extra length Jaws may be obtained for use on Timken Cups placed deep in Axle Shaft Housing on International, Stewart, White, Dodge 2½ ton and other trucks.

No. 943—Equipped with Long Jaws $10.75

Pinion Shaft Puller Attachment

Used in connection with the oTc Multi-Purpose Puller, this attachment simplifies one of the most difficult jobs on Chevrolet, Pontiac, etc. This tool removes the Drive Shaft from Housing without dissembling Drive Shaft.

No. 944 ..... $5.00

oTc Timing Gear Puller Attachment

This useful attachment is used with the oTc Multi-Purpose Puller to pull Timing Gears, Cam Gears, Fan Pulleys, Balancers, Hudson-Essex Main Bearings, etc.

A slotted block equipped with two 3/8" USS Heat Treated Cap Screws. Other size Cap Screws may be substituted at will. Plated finish.

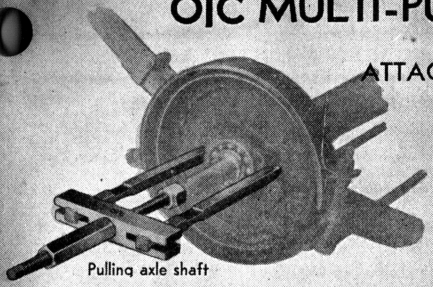
No. 945—(with Cap Screws) $2.50

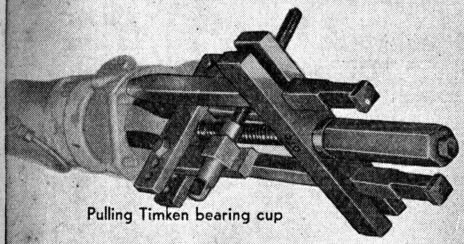
Valve Guide Attachment

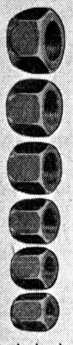
This attachment for the oTc Multi-Purpose Puller increases its popularity in up-to-date shops. It removes old worn valve guides and replaces the new guide without difficulty. Plated finish.

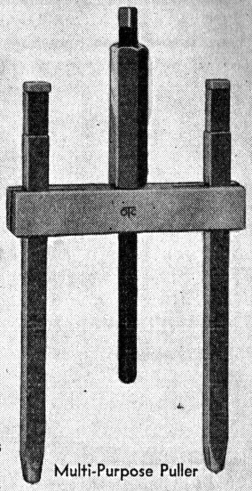
No. 946 ..... $1.25

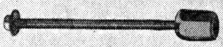
OTC MULTI-PURPOSE PULLER
AND
ATTACHMENTS

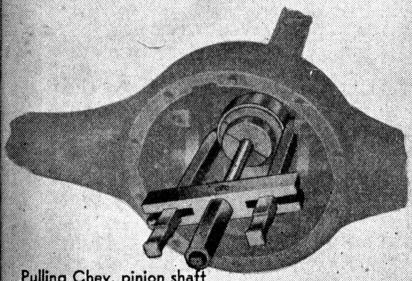

Pulling axle shaft

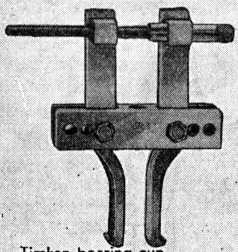

Pulling Timken bearing cup

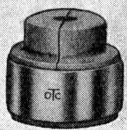

Threaded adaptors

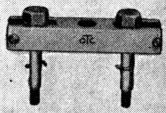

Multi-Purpose Puller

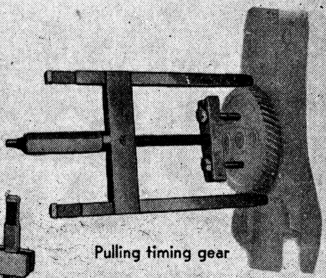

Valve guide attachment

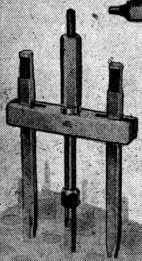

Pulling Chev. pinion shaft

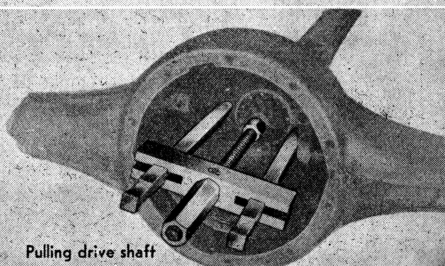

Timken bearing cup puller attachment


Pinion shaft puller attachment


Timing gear puller attachment


Pulling timing gear



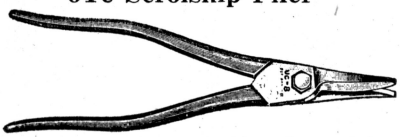

Pulling drive shaft

oTc No. 706 Water Pump Plier

A plier that eliminates the need for a whole set of Pump Nut Wrenches. An indispensable tool in every mechanic's kit. A powerful, well built Plier that carries a wide range of jaw adjustments for handling all standard sizes of Packing Nuts, and which can be used for general all-around work.

No. 706—Water Pump Plier $1.50
No. 705—Ignition Plier (same as above) 4½" long 1.00

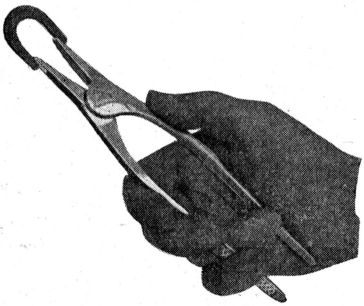
oTc Scrolsnip Plier



This Snip is a very handy tool in any garage. Especially adapted for cutting irregular shapes, scrolls and intricate patterns. Circular cutting is made easy with this tool.

No. 709—Scrolsnip $2.00

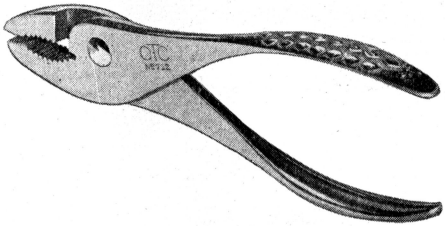
Lock Ring Plier



This Plier is designed to spread the horseshoe lock rings used on all types of hydraulic brakes, transmission and differential parts and in other points on late model cars. The use of lock rings is more prevalent than ever and since they are usually loose in position it is extremely difficult to spread them by prying. This lock ring plier does the job easily and quickly.

No. 714 Lock Ring Plier $1.25

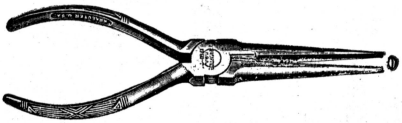
*Diamond Grip Plier



oTc Diamond Grip Pliers are the last word in Slip Joint Plier design. Outstanding quality and ruggedness built into these Pliers make them highly desirable and a valuable piece of equipment in any tool box.

No. 711 Slip Joint Plier 5" $1.00
No. 712 Slip Joint Plier 6" 1.25

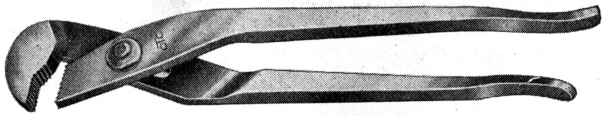
Needle Nose Plier



A straight needle nose plier built for long service. Exceptionally useful in ignition and other fine work where careful workmanship is important. Length 7½".

No. 708 ..... $1.65
No. 707—with Side Cutter 1.85

oTc No. 701 Powergrip Plier



A Plier that combines all the power and gripping strength of a Stud Puller with the utility and usefulness of an Offset Slip Joint Plier. A wide range of adjustments allow it to handle a large variety of Nuts, Bolts, Studs, Rods, etc. Truly an all purpose Plier. A remarkable tool built for long "uninterrupted service." Plated.

No. 701—Powergrip $2.50

oTc No. 702 Super Side Cutter

A Side Cutter—designed by mechanics, built by mechanics for mechanics use.

Jaws shaped and offset to get into close quarters. Handles shaped to give great leverage, without tiring the hands.

Tremendous cutting power, with large rivet close to the cutting edge. Handles lapped, so as to overcome the twisting strain in pulling cotter keys.

Made from a special analysis steel heat treated to give great hardness on cutting edge—with maximum toughness in handles and eye to resist breaking. Plated.

Truly a Super Side Cutter.

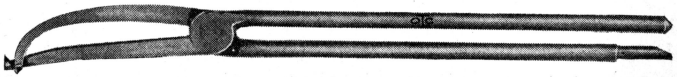
No. 702—Super Side Cutter $2.00

oTc No. 703 Battery Plier

Especially designed for use on Battery and terminal nuts. Thin, pointed jaws, set at 30° angle, permit working in close quarters. Will not injure or break battery cover. Forged from High Grade Material and Heat Treated to give service. Plated.

No. 703—Battery Plier $1.25

oTc No. 704 Brake Spring Plier



A tool that makes play out of removing and replacing brake springs. One end of handle machined to facilitate replacing springs.

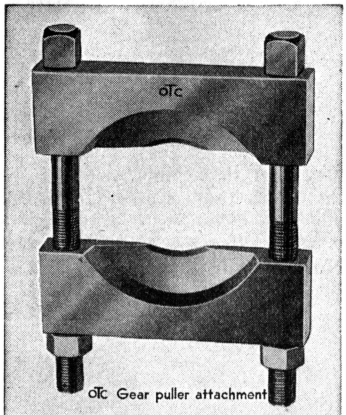
Hand forged from high grade Alloy Steel and heat treated. Plated.

No. 704—Brake Spring Plier $2.00

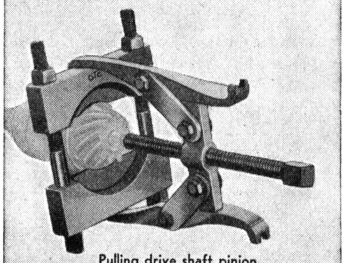
oTc Gear Puller Attachments

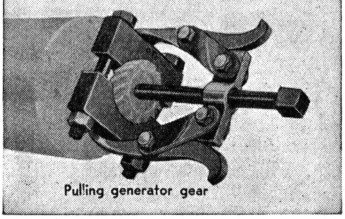
(Patent Applied For)

The oTc Gear Puller Attachment is essential equipment for the shop that takes pride in good work well done. The thin sharp edges of the tool are forced behind the work where it is impossible, because of lack of space, to get a grip with a Gear Puller. When the tool is in position it is a simple matter to place it in a press or attach a Gear Puller and complete the job. This tool is built particularly to pull Gears, Pinions, Races, Bearings, Collars, etc. Made of high grade, high test material and heat treated to give great strength and toughness. Rust proof plated finish.



oTc Gear puller attachment


Pulling drive shaft pinion


Pulling generator gear

No. 950 Gear Puller Attachment. Capacity up to 2¼" outside diameter. For pulling Generator Bearings, Races, Gears and other small work.

Price **$3.50**

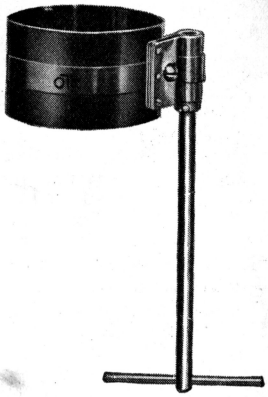
No. 951 Gear Puller Attachment. Capacity up to 4¼" outside diameter. For use in pulling Pinions, Cam Gears, Timing Gears, Bearings, etc.

Price **$9.25**

No. 952 Gear Puller Attachment. Capacity up to 5¾" outside diameter. Particularly adapted to large Gears, Bearings and Pinions found on Trucks, Tractors and Busses. Also exceptionally useful for pulling large Bearings on Electric Motors, Pumps and other Heavy Equipment.

Price **$15.00**

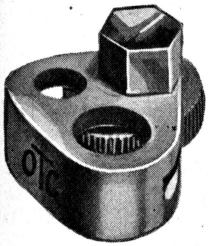
oTc Ring Compressor



Built of Swedish Blue Spring Steel and designed to handle all pistons from 2½" to 5". Compression tape is made from a very tough grade of Swedish steel and is tempered to give long service. The flare on the edge of the tool prevents it from entering the cylinder when piston is pushed down.

No. 868—Ring Compressor **$1.30**

Extra Tape ..... **.35**

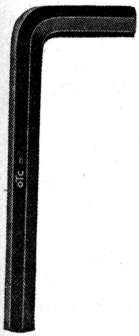


oTc Super Stud Bolt Wrench

A combination Stud Wrench with an exceptionally wide range. Takes any Stud from $\frac{5}{16}$" to ¾" easily and efficiently. Small enough to get into tough places, yet big and strong enough to pull the large size Stud Bolts. The body of this tool is drop forged and heat treated to withstand severe usage. Hexagon Adaptor permits use of either a Box Wrench or Socket.

No. 843—Super Stud Bolt Wrench **$2.65**

†oTc Set Screw Wrenches

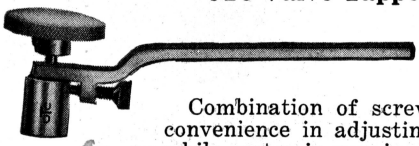


Exceptionally useful and indispensable in modern shops. Late motors of all kinds are using hollow head Cap Screws and Hollow Set Screws on which these wrenches must be used. Plated.

Item No.	Size	Fits Set Screws	Fits Hollow Head Cap Screws	Price
W-4	⅛"	¼"		**$0.10**
W-5	$\frac{5}{32}$"	$\frac{5}{16}$"	No. 10	.10
W-6	$\frac{3}{16}$"	⅜"	¼"	.15
W-7	$\frac{7}{32}$"	$\frac{7}{16}$"	$\frac{5}{16}$"	.15
W-8	¼"	½"	⅜"	.20
W-10	$\frac{5}{16}$"	⅝"	⅜" and $\frac{7}{16}$"	.25
W-12	⅜"	¾"	½"	.30

W-13—Set of 7 Above Wrenches (in Kit) $1.25

oTc Valve Tappet Adjusting Tool



Combination of screw driver and twelve point socket for convenience in adjusting valves on overhead valve motors—while motor is running. Socket detachable—uses **oTc** Junior Sockets (⅜" Sq. Connection). Plated finish.

No. 838—Tappet Adjusting Tool $1.50
Junior Sockets to fit, each ..... .40
No. B-218—Special Tappet Socket for late Buicks $0.50
No. C-220—Special Tappet Socket for late Chevrolets ..... .50

Spring Leaf Grease Punch

An indispensable tool for every grease rack. Designed to permit forcing grease BETWEEN Spring Leaves. It is impossible to eliminate that annoying spring squeak with only an oil spray. The spray can not possibly reach the dry parts where the squeaks originate.

The **oTc** Grease Punch can be driven between the leaves and grease forced through with a regular pressure gun. Simple and easy to operate, yet very effective and efficient.

This tool comes equipped with a genuine pin-type alemite fitting but the hydraulic or zerk fitting may be substituted if desired.

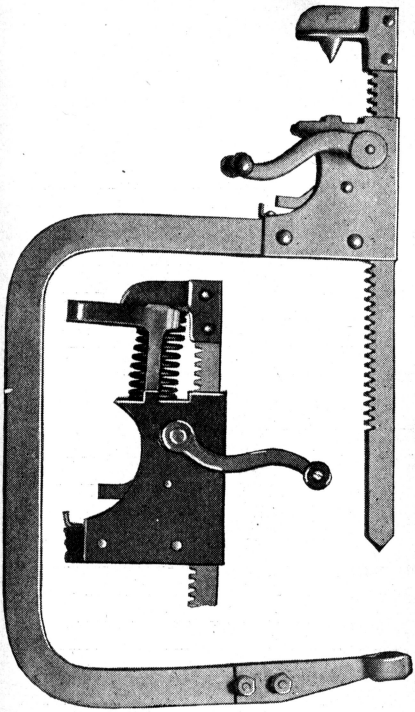
No. 845 Grease Punch $0.90

Point Files

oTc Point Files are made with flat handles and built especially for tungsten points in distributors. They are unequalled for service on tungsten or iridium.

Point Files, each $0.10
Point Files, per dozen 1.10

Little Wonder Valve Lifters



The Little Wonder Valve Lifter has long been recognized as the most universal of the C type lifters. It is adaptable to practically all makes of cars and does a very satisfactory job. It has a positive vertical lift and a positive automatic lock which locks at any desired position. The handle is fitted with a ratcheting device to permit clearing obstructions. The frame provides sufficient clearance which makes the removal of the exhaust manifold unnecessary. This tool is also provided with a recompression arrangement which permits easy and quick compression of the Valve Springs. Each lifter comes complete with one set of straight spring jaws (as illustrated) and a set of three spring holders.

No. A-200 Lifter 11" x 11"
Frame **$6.50**

No. B-300 Lifter, Truck and Tractor Special, 11" x 13"
Frame **8.50**

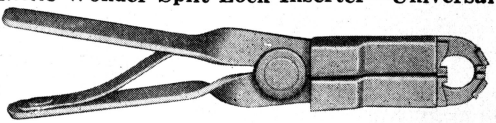
Additional jaws may be purchased to give these lifters a wider application. These jaws are interchangeable on either the Standard A-200 or the Heavy Duty B-300 Lifter. Exceptionally useful where motors have low block clearance at valve cover plate.

No. 2 Jaws, per pr.....$1.00

No. 3 Jaws, per pr.....$1.25

No. 5 Jaws, per pr.....$1.25

Little Wonder Split Lock Inserter—Universal



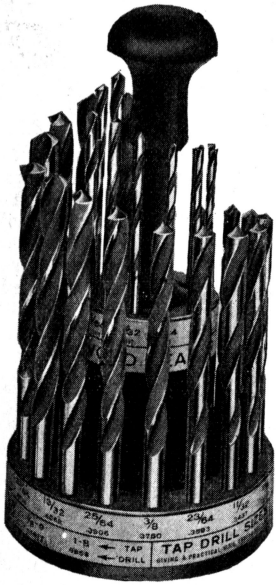
Will hold all split locks regardless of size. To load, draw back the sliding bar with the thumb, place the split lock firmly in the stationary jaw and release the sliding bar, allowing it to come back against the split lock.

Simple, quick and absolutely dependable in action. No. 851—Lock Inserter..... **$1.00**

*oTc High Speed Twist Drills

It is a common belief that there is no great difference in Twist Drills. There is a difference. **oTc** Twist Drills combine accuracy and strength, quality and utility. They are the result of innumerable experiments with different steel alloys, construction and heat treatment. You will be thoroughly pleased with a set of these High Speed Drills.

Diameter Inches	Decimal Equivalent	Length	Price
1/16"	.0625	2½"	$0.25
5/64"	.0781	2⅝"	.25
3/32"	.0937	2¾"	.25
7/64"	.1094	2⅞"	.30
1/8"	.1250	3 "	.30
9/64"	.1406	3⅛"	.30
5/32"	.1562	3¼"	.35
11/64"	.1719	3⅜"	$0.35
3/16"	.1875	3½"	.40
13/64"	.2031	3⅝"	.45
7/32"	.2187	3¾"	.45
15/64"	.2344	3⅞"	.50
¼"	.2500	4 "	.60
17/64"	.2656	4⅛"	.60
9/32"	.2812	4¼"	.65
19/64"	.2969	4⅜"	.70
5/16"	.3125	4½"	.75
21/64"	.3281	4⅝"	.85
11/32"	.3437	4¾"	.90
23/64"	.3594	4⅞"	.95
⅜"	.3750	5 "	1.05
25/64"	.3906	5⅛"	1.15
13/32"	.4062	5¼"	1.25
27/64"	.4219	5⅜"	1.35
7/16"	.4375	5½"	1.45
29/64"	.4531	5⅝"	1.55
15/32"	.4687	5¾"	1.65
31/64"	.4844	5⅞"	1.75
½"	.5000	6 "	1.85



Complete Set of 29 Drills $23.20

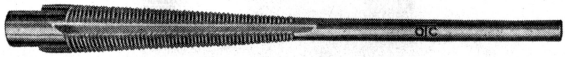
*Drill Stand

Drill Stand is built from rust-proof material. Each drill hole is plainly marked for proper drill size. The holes are exact and can be used as a Drill Gauge. This Drill Stand will hold all of the above 29 sizes of drills.

Stand Only—No. 848 ..... $2.50

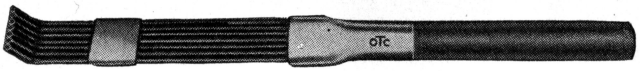
See Page 80 for information on Correct Care of Drills.

oTc Bushing Extractor



For use in driving out bronze bushings from ½" to 1" inside diameter.
No. 828—Bushing Extractor.....$2.00

oTc Carbon Scraper

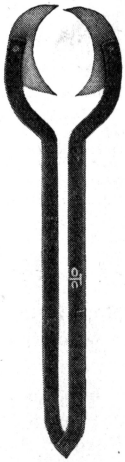


Made from Spring Steel Wire to assure long life and flexibility. Permits scraping uneven contours on Cylinder Heads and Motor Blocks. Plated.
No. 839—Carbon Scraper.....$0.75

Bendix Brake Adjusting Tool

Permits making Bendix Brake adjustments efficiently and quickly. ⅜" Bits. 7½" Long over-all. Plated.
No. 841—Bendix Brake Tool.....$0.70

oTc Ring Groove Cleaner



A universal tool—so built that it will clean carbon from sides and bottoms of grooves of all standard widths, on pistons from $2\frac{11}{16}$ to 4" in diameter.

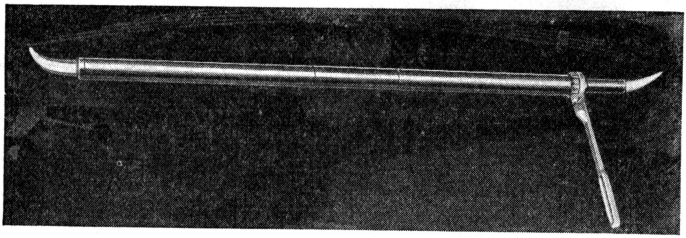
Four cutting edges—all operating in the one groove—slight pressure on handle forces two edges to bear on upper and two on lower edge of groove. Cutters heat treated and ground—will work and stay sharp indefinitely. Plated finish.
No. 840—Ring Groove Cleaner.....$1.00

oTc Pick-Up Tool

A handy tool in any kit. Serves as a retriever of lost parts that have fallen into inaccessible places. Can be used as a screw starter for replacing and removing valve pins or horseshoe keepers, and has many other uses in a repair shop. Its usefulness far exceeds its low cost.

No. 830—Pickup Tool, 6" over-all.....$0.60
No. 831—Pickup Tool, 8" over-all.....$0.70
No. 832—Pickup Tool, 10" over-all.....$0.80

Universal Ford Spring Spreader



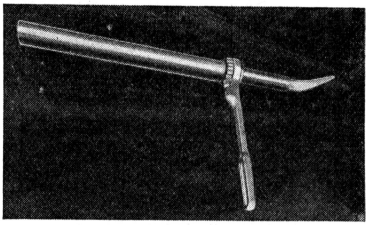
Showing Application on 1935 Rear Spring

The **oTc** Spring Spreader is a Universal tool which works on all model Fords from 1928 to 1936 inclusive. It is composed of varied length extensions which provide the exact expansion necessary on all models. Its practical design adapts this tool for use on front as well as rear springs on all models in an equally efficient manner.

The ratcheting action used to force expansion of the spring is fast and easy of operation. The ratchet handle provides sufficient leverage and no extensions are necessary. The body of the tool is built from seamless. all-steel tubing which gives unlimited strength and life to the tool.

Only a part of the complete tool is used on Model A rear Springs. The left side of the spring can be hooked up easily. The tool is then used against the top cap screw on the differential housing to spread the other side.

No. 450 Ford Universal Spring Spreader complete **$12.50**

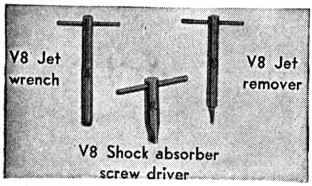


As used on Model A

oTc V8 Ford Jet Remover

The **oTc** Jet Remover extracts the broken portion of the main discharge Jet on the "EEL" type Duplex Down Draft Carburetor on 1935 and 1936 V8 Fords. Also works perfectly on the low speed Jets on Carter Carburetors (excepting Down Draft).

No. 417 ..... **$0.80**



oTc V8 Shock Absorber Screw Driver

For cross slotted brass adjusting screws on late type shock absorbers. Plated.

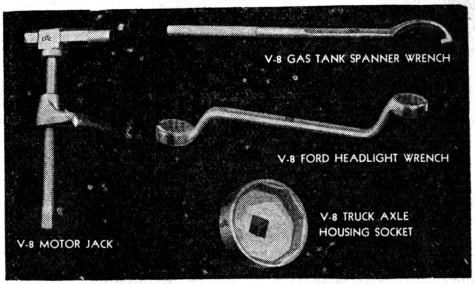
No. 418 ..... **$0.75**

oTc V8 Dual Carburetor Jet Wrench

Takes the main metering Jet on the 1935 and 1936 V8 type "EEL" Ford Duplex Down Draft Carburetor, and does the job perfectly.

No. 416 ..... **$0.90**

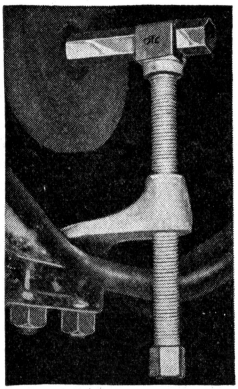
Illustrated at the right are four very essential Ford Service Tools which should be found in every shop servicing this make of car. Each one of these tools was built to fill a definite need, to eliminate waste time and to do the job for which they are intended in a more efficient manner.



V8 Motor Jack

In order to drop the crank case on all late model Ford cars and trucks it is first necessary to raise the front end of the motor. The Motor Jack simplifies this job to such an extent that it may be done in one-half the time.

No. 445 V8 Motor Jack.....**$4.25**



Motor Jack in operation.

V8 Gas Tank Spanner Wrench

This Wrench is designed to tighten the gas line connection between the filler spout and the gas tank under the left rear fender. Very necessary to stop leakage or to remove or replace the fender. Works on all late models.

No. 446 V8 Gas Tank Spanner Wrench.....**$1.00**

V8 Head Light Wrench

A very necessary wrench for use on all models from 1934 to and including 1936. Has $\frac{15}{16}$" and $1\frac{1}{16}$" slotted openings so that wrench may be applied without removing wires. Headlight adjustments cannot properly be made without this useful wrench. Can also be used on Hudson and Terraplane cars.

No. 434 V8 Head Light Wrench.....**$2.00**

V8 Truck Axle Housing Socket

A 3" Octagon Socket with ¾" square connection for use when removing late model truck hubs and adjusting rear wheel bearings. Works only on Ford Trucks having full floating axle. Drop forged and built for service.

No. 444 V8 Truck Axle Housing Socket.....**$2.25**

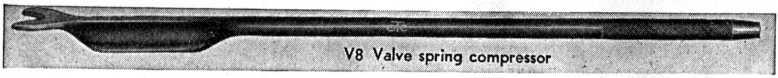
V8 Generator Bearing Adjusting Wrench

No. 442

A Spanner Wrench for use in adjusting the double Timken Bearing in the front end of the V8 generators. Fan pulley and spring lock must be removed to expose the slotted adjusting nut. Adjustment is then easily accomplished and the bearings tightened. An essential Wrench in every Ford Shop and Ignition Service Shop.

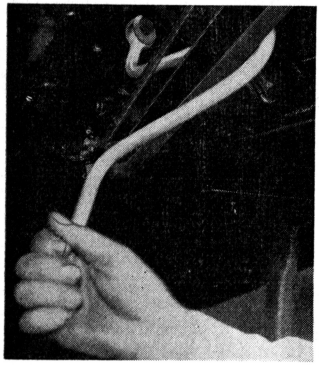
No. 442 .....**$0.75**

oTc V8 Valve Spring Compressor



Built to compress Valve spring in order to remove valve keeper and also to remove valve guide lock. 21½" long to permit plenty of leverage and works on all V8 Fords, including '36. Plated finish.

No. 413—Spring Compressor **$1.50**

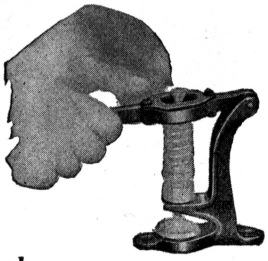


V8 Universal Joint Housing Wrench

Because of various obstructions found around the Universal Joint Housing on 1935 and 1936 Models it is impossible to remove or replace the two bottom cap screws with an ordinary wrench. The peculiar offset permits the wrench to clear the radius rods and allow sufficient throw to work on this job.

No. 456 V8 Universal Joint Housing Wrench **$1.50**

V8 Valve Assembly Tool



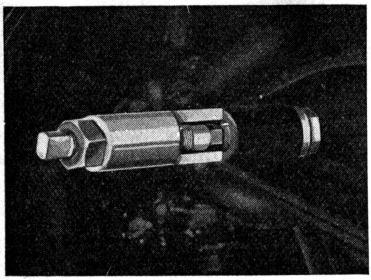
Built as a bench tool to compress the valve spring to allow removing and replacing Valve Keeper. V8 Valve Assemblies are removed as an assembly and replaced the same way. To compress this spring in any other manner is a difficult operation.

No. 438 Valve Assembly Tool **$2.00**

V8 Brake Pedal Spring Hook

This Hook is built to simplify the very difficult job of hooking up the brake pedal spring on late model Fords. In order to hook up this spring it is necessary to do so by reaching through the hole in the cross member in the frame with this tool. This oTc tool overcomes this extremely tough job without loss of time.

No. 457—V8 Brake Pedal Spring Hook **$1.00**



V8 Shackle Pullers

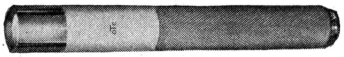
The cut-away photograph shows the practical application of the V8 Ford Shackle Puller. It is designed and built to pull the Shackles on V8 cars from 1932 to and including 1936 models. Two sizes of barrels are necessary. One, the ¾" barrel for perch shackles and the ⅞" barrel for spring shackles.

When pressure is applied by turning the forcing nut against the barrel, care should be taken so that shackle bolt is not pulled in two. A few sharp raps against the shackle housing will tend to loosen the shackle and allow it to be pulled without trouble.

A tool exactly the same in design can be purchased for V8 Ford Truck Front Spring Shackles.

No. 422-A—V8 Shackle Puller with ⅞" Barrel **$2.75**
No. 422-B—V8 Shackle Puller with ¾" Barrel **2.75**
No. 422 —V8 Shackle Puller Complete with 2 Barrels **3.75**
No. 422-E—V8 Truck Front Spring Shackle Puller 1⅛" **3.50**

V8 Shackle Punches



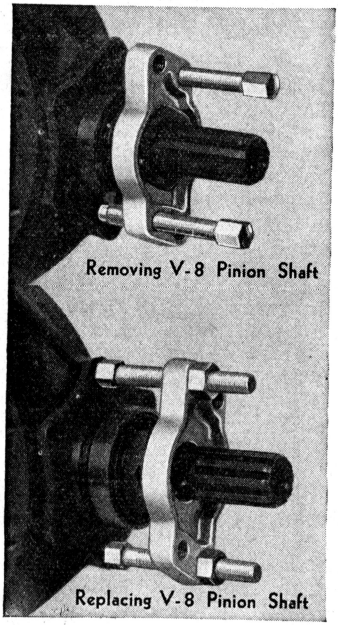
These punches are essential for use in replacing all size Rubber Shackles where close quarters do not permit the new shackle to be pulled into position. With these punches it is possible to drive the shackle into place without the possibility of splitting the case. They conform to the contour of the shackle and are sized to fit. Used with the No. 422 Shackle Puller this combination makes easy work of these difficult jobs.

No. 447—V8 Shackle Punch for ¾" Shackles **$1.00**
No. 448—V8 Shackle Punch for ⅞" Shackles **1.00**
No. 449—V8 Truck Front Spring Shackle Punch 1⅛" **1.25**

Rubber Shackle Sleeves

Sleeves are provided to place over the shackle to prevent the shackle from swelling when driving them into position. Should be used with shackle punches. Made from seamless steel tubing and reamed to size.

No. 422-C—⅞" Shackle Sleeve **$0.40**
No. 422-D—¾" Shackle Sleeve ..... **.40**



V8 Drive Shaft Pusher and Puller

No. 440

The new **oTc** V8 Drive Shaft Pusher and Puller removes and replaces the Pinion Shaft, Bearings and Pinion without dissembling the entire rear end. A tool that does these difficult operations easily and without loss of time.

OPERATION

To remove: Disconnect Drive Shaft, remove large pinion bearing adjusting nut. Place tool in position on pinion shaft with pushing screws in place.

(See photograph). Replace large adjusting nut so as to hold tool in place. Remove pinion shaft by turning both forcing screws until job is done.

To Replace: Screw double end studs into differential housing, start pinion shaft bearing, put tool against adjusting nut and turn nuts on studs until pinion is installed.

No. 440 ..... **$5.80**

oTc Ford Offset Bushing Punch

Offset to drive bushings out of rear spring perch. Works equally well on bushings in spring and front perch. Plated.

No. 421 ..... **$1.00**

V8 Pinion Bearing Adjusting Nut Wrench

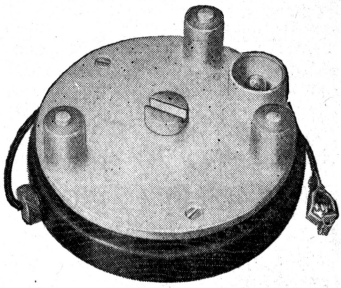
No. 439

Has 1⅞" opening to take large double adjusting nuts on V8 Pinion Shaft. A difficult job easily handled with this wrench. The jaws of the wrench are narrow enough to permit turning each nut separately. Very essential when removing and replacing V8 Pinions or Bearings.

No. 439 ..... **$2.00**

V8 Ford Distributor Synchronizer

No. 470



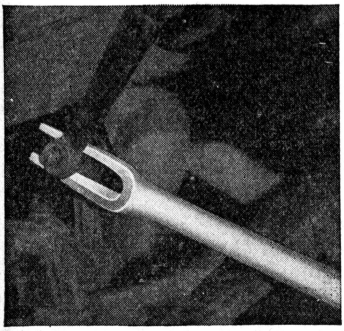
A new tool that will permit fleet owners operating V8 Fords and repair shops doing Ford service work to synchronize and time Ford distributors accurately. It is indispensable to any shop doing Ford service work since these distributors cannot be accurately timed without it.

Points should be spaced accurately and coil installed in distributor before attempt is made to use this tool. The distributor is then placed in position, the adjusting set screw loosened and adjusted until light goes out. If distributor is timed correctly in one position there can be no variations in the other positions and the distributor is synchronized. This testing instrument is equipped with first quality batteries and bulb and is guaranteed to be accurate.

No. 470—V8 Distributor Synchronizer ..... $4 .25

Shock Absorber Link Separator

No. 462



Built to separate V8 Ford Shock Absorber links and Tie Rod joints by driving the wedge between the parts.

After removing the nut from the tapered bolt holding the Shock Absorber link, the wedge-shaped fork of this tool is placed between the Shock Absorber link and the shock arm. A few sharp blows on the end of the tool with a hammer forces the tapered bolt out of the shock arm quickly and easily.

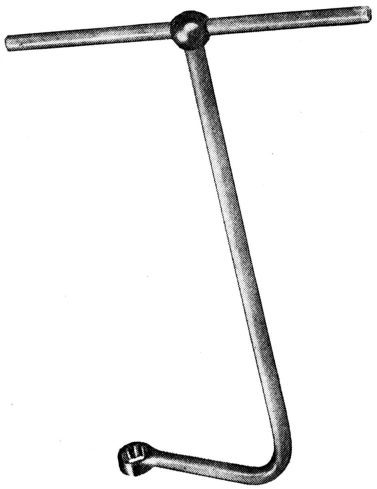
On 1934 Ford Shock Absorbers a spacing collar must be used to get the desired action. Spacing collar is furnished with each tool.

This tool is equally efficient when separating tie rod joints if used in a manner similar to that explained above.

Eighteen inches long, drop forged and built for long service.

No. 462—Shock Absorber Link Separator $2.25

V8 Shock Absorber Filler Plug Wrench



An offset Tee Wrench specially designed to remove and replace the filler Plug on late model Ford Shock Absorbers—an impossible operation without the proper tool. Works on all 1935 and 1936 models.

No. 454—V8 Filler Plug Wrench....$1.45

No. 419 Filler Plug Wrench

(Not illustrated)

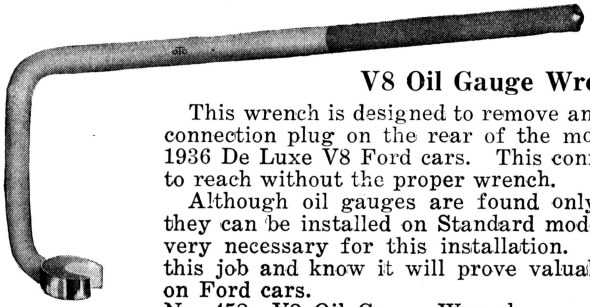
A double end S type Box Wrench that takes all $\frac{7}{16}$" square or hexagon filler plugs on Model A and V8 Ford Shock Absorbers up to and including 1934 models. A very essential tool on these cars.

No. 419—Filler Plug Wrench.....$1.15

V8 Fan Pulley Nut Wrench

An improved wrench for loosening and removing V8 Fan Pulley Nuts on all models. Essential on models where fan pulley must be loosened to permit dropping the pan. 1⅜" 12 point opening. Place wrench on fan pulley nut and step on starter. The chassis cross member holds wrench while nut unscrews.

No. 433 ..... $1.00



V8 Oil Gauge Wrench

This wrench is designed to remove and replace the oil gauge connection plug on the rear of the motor block on 1935 and 1936 De Luxe V8 Ford cars. This connection is very difficult to reach without the proper wrench.

Although oil gauges are found only on De Luxe models, they can be installed on Standard models, and this wrench is very necessary for this installation. We recommend it for this job and know it will prove valuable to anyone working on Ford cars.

No. 458—V8 Oil Gauge Wrench.....$1.50

oTc Ford Brake Wrench

Square opening on one end and 8 point on the other to service both car and truck. A tough wrench for a tough job. Works on all models. Plated.

No. 420 ..... $1.35

oTc Ford Brake Spring Plier

(Illustrated on Page 43)

Removes and replaces brake springs on Ford in one simple operation. One end hooks in spring, the other in brake lining. Works on all models. Plated.

No. 704 ..... $2.00

oTc Ford Tie Rod Socket

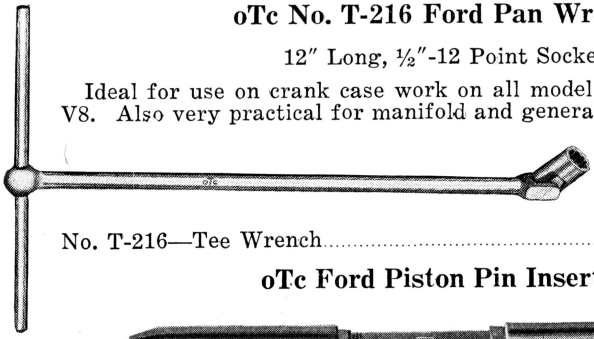
⅜" Square Connection

When used with oTc Junior Socket Handles, it makes adjustments on shock absorbers and tie rod quickly and easily. ¾" bit. Works on all models. Plated.

No. 227 ..... $0.50

oTc No. T-216 Ford Pan Wrench

12" Long, ½"-12 Point Socket



Ideal for use on crank case work on all model Fords including 1936 V8. Also very practical for manifold and general purpose work.

No. T-216—Tee Wrench $2.50

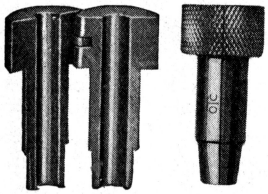
oTc Ford Piston Pin Inserter

A perfect tool for removing or replacing piston pins. Operation: Unscrew pilot end from handle, slip pin on shoulder of handle and screw pilot into handle, turning up tight. Pilot expands locking ring evenly. Made of alloy Steel and heat treated to give maximum service. An absolute necessity in every Ford Service Station. Plated finish.

No. 406—Model A $2.00

No. 407—V8 ..... 1.85

oTc Model A Ford False Valve Guide



A time saver on valve work. It lifts out with the valve as it is not put in from the bottom as the regular guides are. The two halves are hinged together which permits faster operation and prevents the loss or misplacing of parts. Accurately made and guaranteed to do the job. Works on Model B4 also.

No. 408 ..... $1.25

oTc Model V8 False Valve Guide

Same construction and design as the Model A False Guide but made to fit the V8 Ford. Accurately machined to guide valve perfectly in grinding. Guide goes into block from the top, and remains on the valve stem when lifted out for inspection. Works on all V8 models.

No. 409 ..... $1.25

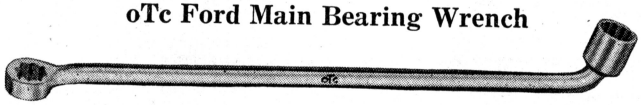
oTc Ford Valve Guide Punches

The **oTc** Ford Valve Guide Punches have proven to be the most practical tools of their kind on the market. Of rugged construction, simple design and easily operated they will do the job with a minimum of time and effort. Plated.

No. 410—Model A and B4 Valve Guide Punch $1.00

No. 411—Model V8 Valve Guide Punch ..... .90

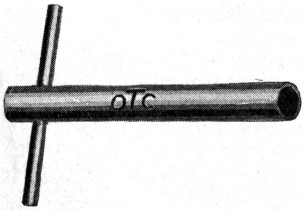
oTc Ford Main Bearing Wrench



This wrench has $\frac{9}{16}$" eight point box opening on one end and $\frac{3}{4}$" twelve point fixed socket on the other. Takes all main bearing bolts on both car and truck of Model A, Model T and B4. Plated.

No. 425 ..... $2.00

oTc Ford Carburetor Jet Wrench

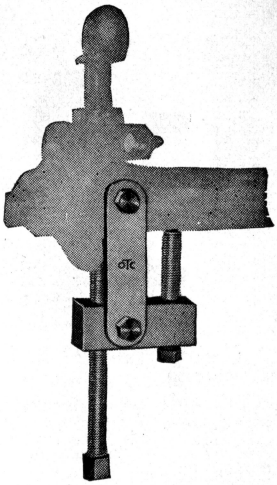


The handiest tool made for servicing Model A Ford carburetors. Speeds up the work and saves a lot of time.

Has two socket openings to take care of both low and high speed jets. Does a perfect job. Works also on B4. Plated.

No. 415 ..... $1.00

oTc Ford King Pin Remover



The illustration shows the application of this tool to the job. Pulls the tightest king pins. Works on all models. Plated finish.

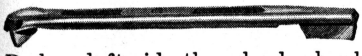
No. 431—Car Size $5.00
No. 432—Truck Size 7.50

oTc Ford Hub Bolt Punches

For upsetting the shoulder on all model Ford Hub Bolts. Made in two styles: The starter punch to do the preliminary unsetting, and the finishing punch to complete the job. Plated.

No. 402—Car Starter Punch ⅞" $1.00
No. 403—Car Finishing Punch ⅞" ..... .75
No. 404—Truck Starter Punch 1⅛" 1.25
No. 405—Truck Finishing Punch 1⅛" .. 1.00

No. 833 Tie Rod Adjusting Tool



Built particularly for use on V8 Fords because of the limited space available for adjusting Tie Rods. When adjusting Tie Rod on left side the wheels should be cramped as far to the right as possible and the reverse when adjusting right side Tie Rods. No. 833 ..... $0.75

oTc V8 Connecting Rod Socket

A short, extremely thin $\frac{9}{16}$" Socket with ½" Sq. Connection, and its use must be limited to this job. Plated.

No. 423 ..... $0.50

oTc Ford Connecting Rod Socket

½" Square Connection

No. 121 (Size $\frac{21}{32}$") $0.55

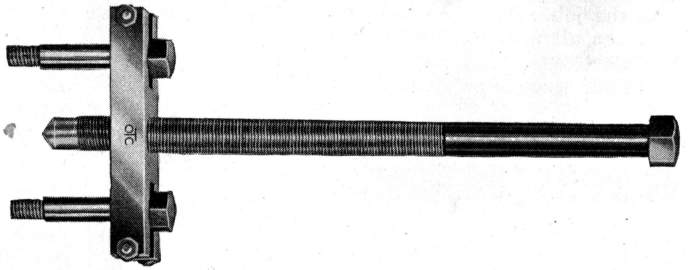
oTc V8 Manifold Wrench

A double end twelve point Box Wrench—both ends bent and offset to get at the $\frac{9}{16}$" manifold nuts on V8 Manifold. A real tool for a mighty tough job. Plated.

No. 437 ..... $1.20

CHEVROLET SECTION

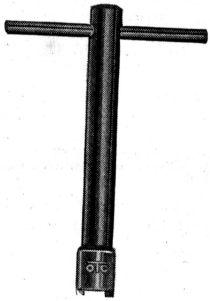
oTc Chevrolet Fan Pulley Puller



A very practical tool for pulling Fan Pulleys on all model Chevrolets. Slotted block allows wide range of adjustments. Screw reaches through crank hole and fan pulley is pulled without removing radiator. This tool works equally well on all timing gears that are tapped for cap screws. Plated.

No. 515 ..... $3.50
Extra Screw 1.00

oTc Chevrolet Carburetor Jet Wrench

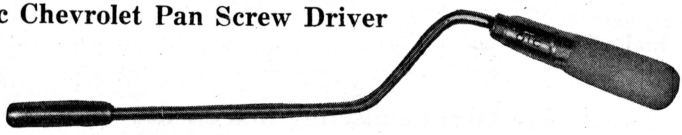


This tool adjusts both the multiple jet nozzle and the needle seat on all Carter Carburetors, which is used on several makes of cars.

Made of Chrome Vanadium Steel and heat treated. Plated finish.

No. 506 ..... $0.85

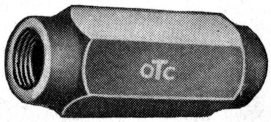
oTc Chevrolet Pan Screw Driver



A new style, one hand speeder that is a wonder. Holds and lines up the pan screw and is a real time saver. Made of Chrome Vanadium steel and heat treated to give service. Plated.

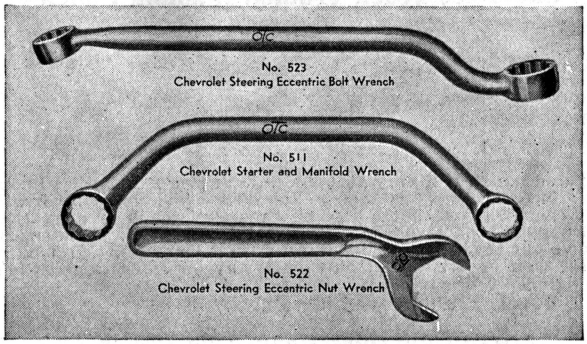
No. 510 ..... $1.50

oTc Chevrolet "6" Special Wheel Puller



Same design as our regular ¾" knock-off wheel puller for use on late Chevrolets. Plated.

K-24—¾" SAE $0.95
K-26—$\frac{13}{16}$" 16 Thread 1.00



Chevrolet Steering Eccentric Bolt Wrench

No. 523

For use on the Chevrolet Eccentric Lock Nut when adjusting the steering eccentric. Should be used with No. 522 when making adjustment. $\frac{9}{16}$" and $\frac{5}{8}$" openings. Works on 1935 and 1936 Chevrolets and Pontiacs. Plated finish.

No. 523 ..... **$1.15**

Chevrolet Starter and Manifold Wrench

No. 511

Has $\frac{5}{8}$" 12 point opening for starter nuts and $\frac{9}{16}$" 12 point opening for those difficult Manifold Nuts. Both ends bent to handle these jobs perfectly. Plated finish.

No. 511 ..... **$1.35**

Chevrolet Steering Eccentric Nut Wrench

No. 522

Has $1\frac{5}{16}$" opening and correct angle to reach and adjust steering eccentric nut easily and without loss of time. Should be used with No. 523. Works on 1934 and 1935 Chevrolets and Pontiacs. Plated.

No. 522 ..... **$1.00**

Chevrolet Steering Eccentric Nut Wrench

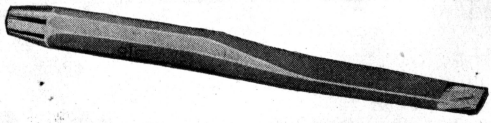
No. 526

Same as No. 523 but has a $\frac{7}{8}$" opening for use on 1936 Chevrolets and Pontiacs. Plated finish.

No. 526 Eccentric Nut Wrench **$1.00**

Chevrolet Truck Trunion Bushing Punch

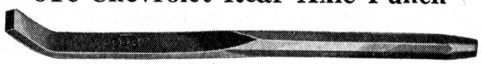
No. 528



This flat tapered punch is a very valuable tool in every Chevrolet Shop. It is designed to drive out the four bushings in the Truck Trunion Universal Joint when dissembling. When doing a clutch job or transmission job or any other job which necessitates dropping the drive shaft this tool is essential. It is worked through the joint to drive out the opposite bushing. Spring locks must first be removed and bushings should then be driven out only part way on opposite sides before driving them out completely to dissemble.

No. 528 Chev. Truck Trunion Bushing Punch **$0.75**

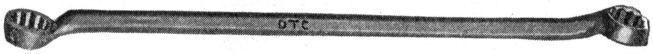
oTc Chevrolet Rear Axle Punch



Drives out stub of broken axles from differential assembly. Works through inspection plate and makes the removal of the opposite wheel and axle unnecessary. Truly a wonderful time saver. Plated.

No. 501 ..... **$1.25**

oTc Chevrolet 4 Main Bearing Wrench



oTc Box Wrench No. 2628 Long is the perfect Chevrolet Four Main Bearing Wrench. Size of openings $\frac{13}{16}$" and $\frac{7}{8}$". Plated.

No. 2628 ..... **$1.60**

oTc Chevrolet Thickness Gauge

A gauge built of imported heat treated steel and rigidly tested for accuracy. Designed particularly for work on Chevrolet. Contains the following sizes: Three .006 blades, two .008 blades, one .013 blade, one each .018, .024, .032 and .035.

No. 524 ..... **$1.00**

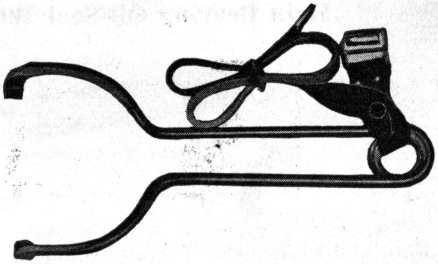
oTc No. 910 Multi-Purpose Puller

This tool (No. 910) can be used to good advantage in Chevrolet Service Shops because of the many difficult jobs it handles. It is doubtful that there is any one tool on the market that will handle such a large variety of work. An **oTc** Multi-Purpose Puller is a good investment in any shop doing Chevrolet work. Some of the jobs it will do on Chevrolets are listed below. See pages 40 and 41.

1. Pulls Axle Shafts.
2. Pulls Drive Shafts.
3. Pulls Transmission Shafts.
4. Pulls Cam Shafts.
5. Pulls Fan Pulleys.
6. Pulls Rear Axle Bearings.
7. Pulls Pinion Shafts.

Buy the oTc Way and Know What You Pay!

oTc Universal Joint Holder



A tool for holding the front ring of universal joint rigidly in place while assembling universal joint. A wonderful time saver on Chevrolet car and truck, Pontiac, etc. Plated.

No. 519 ..... $1.00

oTc Chevrolet Water Pump Wrench

No. 505

An offset wrench with the proper angle to reach and tighten water pumps on late Chevrolets. Has 1" opening and is a perfect tool for this job. Plated finish.

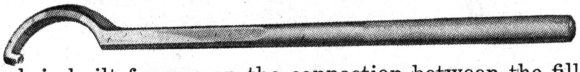
No. 505 ..... $0.90

oTc Chevrolet Valve Guide Driver

For removing and replacing worn valve guides on all models. Does the job quickly and easily. Plated.

No. 521 ..... $0.65

Chevrolet Gas Tank Spanner Wrench



This wrench is built for use on the connection between the filler neck and the gas tank on Chevrolet De Luxe Models with built-in trunks. This connection has a tendency to leak and must be tightened occasionally. The turret nut being of soft material will not stand pounding and a wrench of this type is essential.

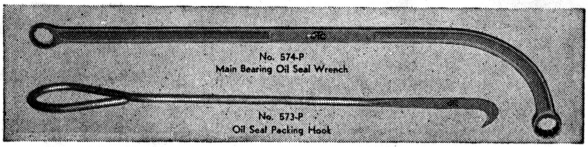
No. 546 Chev. Gas Tank Spanner Wrench $1.00

oTc Chevrolet "6" Hub Set Punch

Made to upset the knurled shoulder on Chevrolet Hub Bolts on both disc and wire wheels. 7¼" long. Car size only. Plated.

No. 512—Starter Punch $1.00
No. 513—Finishing Punch ..... .75

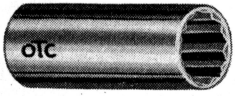
Main Bearing Oil Seal Wrench and Packing Hook



Two vitally essential tools in every shop servicing Chrysler, Dodge, De Soto and Plymouth. Permits removing and replacing Oil Seal on the above cars WITHOUT removing the flywheel and transmission. Cap Screws can be loosened with the Oil Seal Wrench and packing removed with the Hook. To replace packing: insert upper half as far as possible with fingers and hook it the rest of the way with Packing Hook. These two tools cut the actual working time on this job 4 hours.

No. 574-P—Main Bearing Oil Seal Wrench **$1.50**
No. 573-P—Packing Hook ..... **.50**

oTc Plymouth Speedometer Cable Connecting Socket



A $1\frac{1}{16}$"-3½" Long Extra Length Socket that does the job nicely. Plated.
No. L-134 ..... **$1.20**

oTc Plymouth Manifold Wrench

A fixed 12 point Socket and open end wrench combination with bent handle. Does a tough job quickly and easily. Plated.
No. 570-P **$1.35**

oTc Plymouth Starter Wrench

A Twelve Point Box Wrench, with handle bent to clear starter. Does a perfect job. No. 571-P **$1.00**

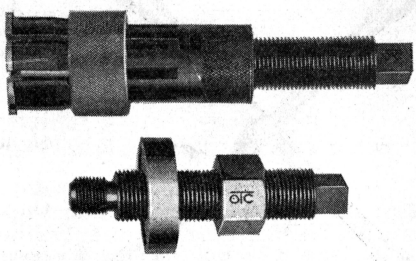
oTc No. 910 Multi-Purpose Puller

The oTc Multi-Purpose Puller can be adapted for use on a great many difficult jobs found in Plymouth, Dodge, and other Chrysler built cars. Turn to pages 40 and 41. This tool should be Standard equipment in every shop working on these cars.

oTc Plymouth Knee Action Yoke Wrench

A 1¼" Offset Box Wrench designed to reach the Knuckle Yoke on 1934 Chrysler, Dodge and Plymouth. Reaches this difficult job easily.
No. 572-P **$2.25**

oTc Buick Timing Gear Set



This set is a real time-saver to the Buick mechanic, on all work involving the timing gear on 8 cylinder models. Accurately machined from alloy steel and heat treated to give lifetime service.

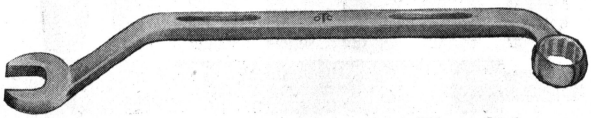
No. 550-B—Buick 8 Timing Gear Puller $5.00
No. 551-B—Buick Timing Gear Pusher $1.50
No. 552-B—Buick Timing Gear Set $6.50

oTc Buick Valve Guide Driver

For removing and replacing worn valve guides on all models. Does the job quickly and easily. Plated.

No. 553-B $0.75

McCormick-Deering Head Bolt Wrench



A double end double offset Box and Open End Wrench for use on McCormick-Deering 10-20 and 15-30 Head Bolts. With this wrench it is possible to remove or tighten these head bolts with rocker arm assembly and manifold in position.

A drop forged wrench of highest quality and one that is indispensable to anyone working on this type of equipment.

No. 856 McCormick-Deering Head Wrench $3.45

oTc Hudson-Essex Wheel Puller

(Not Illustrated)

Late Model Hudson and Essex require a special wheel puller. Knockoff Wheel Puller is made 3½" long and has a ⅞" 18 thread. Plated.

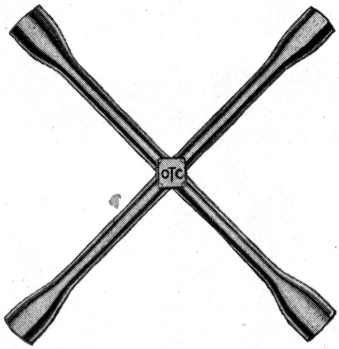
No. K-29 ..... $1.25

No. 60 Caterpillar Block Wrench

An offset, 1¼" opening single end Box Wrench that will reach and work on every one of these block nuts. The offset is sufficient to allow the necessary throw and permits removing or replacing these nuts easily. The wrench is 16½" long to provide ample leverage.

No. 60 Caterpillar Block Nut Wrench $2.25

We pay Postage on all "Paid in Advance" Orders



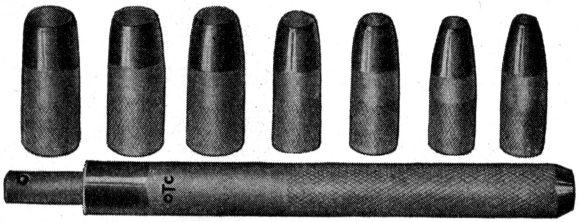
Rim Wrench

An extra long wrench that permits working on wheel lugs on late cars where sufficient clearance is necessary due to new type fenders. It is 15″ over all and this extra length also gives additional leverage essential in breaking loose or tightening hub nuts.

Four openings give it a wide range of use making it universal in its scope. Openings, 5/8″, 3/4″, 13/16″ and 7/8″.

Forged in one piece to eliminate defects and heat treated all the way through.

No. 829—Rim Wrench **$2.00**



Hollow Punches

oTc Hollow Punches have been designed to provide a complete range of popular sizes in a compact set. Seven sizes from 1/4″ to 5/8″ inclusive with a mandrel to fit can easily be held in a small metal case. These Hollow Punches are ideal for cutting gaskets, holes in rubber hose for heater connections, washers, etc. Built particularly for the automotive maintenance trade and entirely suited for its requirements.

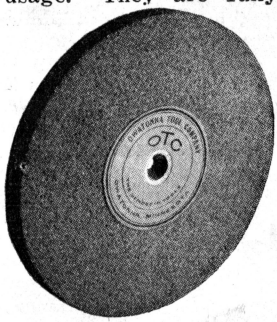
When punching holes in hose or gaskets a wooden block should be used as a base. Under no circumstances should these punches be used for cutting metal.

The Mandrel to fit these punches is the same as that used in the No. 816 Bushing Driver Set illustrated on page 25.

No.	Size	Length	Price	No.	Size	Length	Price
HP-8	1/4″	1 3/4″	$0.40	HP-20	5/8″	1 3/4″	.50
HP-10	5/16″	1 3/4″	.40	No. 813 Mandrel to fit above sizes			$0.75
HP-12	3/8″	1 3/4″	.40				
HP-14	7/16″	1 3/4″	.45	No. HP-7 Set, 7 Sizes and Mandrel			3.85
HP-16	1/2″	1 3/4″	$0.45				
HP-18	9/16″	1 3/4″	.50	No. 890 Metal Case for Above			.60

*Grinding Wheels

The **oTc** Abrasive Grinding Wheels were selected because of their outstanding quality and their resistance to hard usage. They are fully vitrified and will give exceptional service under the most trying conditions. This same type of wheel is used for production purposes in our own factory and have been found to handle a greater variety of grinding operations than any similar wheel made.

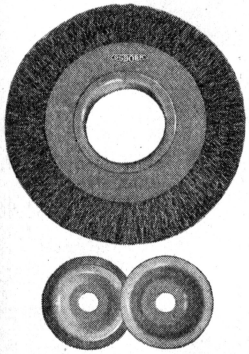


These wheels are cool, fast-cutting, uniform in structure and adaptable to machine shop work, off-hand tool grinding, garage work, etc.

All **oTc** Grinding Wheels are Grade "M" and can be furnished in either 60 or 46 grit which are fine or semi-coarse and most practical for general purposes. All Wheels have a ½" Arbor hole.

No.	Diameter	Width	Grit	Price
4404	4"	¾"	46	$1.25
4406	6"	½"	46	1.85
4416	6"	½"	60	1.85

*Wire Wheel Brushes



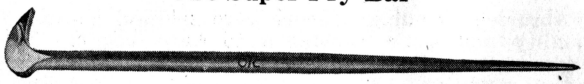
The **oTc** Wire Wheel Brush is a complete unit wheel. It is not composed of sections as are wheels of inferior quality. The assembly of steel wire sections is locked into the Hub parts under pressure, making a complete unit. A specially crimped wire is used assuring less breakage and long wear. In addition, the Hub construction permits the use of a maximum amount of wire which gives an exceptional density on the working face of the brush.

Each wheel has a standard 2" opening and adaptors as illustrated with the required arbor hole size are furnished with each wheel.

When ordering, please specify size of arbor hole required. Adaptors can be furnished with ½", ⅝" and ¾" arbor holes. Unless specified, ½" arbor adaptors will be furnished.

No.	Diameter	Price
4504	4"	1.95
4506	6"	$2.90
Extra Adaptors, per pair		$0.25

oTc Super Pry Bar



A novel creation in Pry Bars that is meeting popular demand all over the country. It combines the distinct advantage of a lining-up punch with the usefulness of a Pry. An exceptionally useful tool for lifting stuck valves, metal body joints, cylinder heads and for prying loose gears, grease cups, bearings, bushings, ball races, etc.

No. PB-43 ..... $1.25

oTc Assembling Punch

A perfect tool for lining up holes in fenders, frames, motors, etc. 14" long. This punch has many distinct advantages in that it can be used for punching holes in metal where there is no need for accuracy or a clean cut hole. Heat treated from end to end. Plated.

No. AP-42 ..... $0.95

oTc Rivet Set Punches

Built for riveting Ring Gears, Cross Members in frames, Steering Brackets in frames, etc. Nine inches over all and heat treated to give long service. Plated.

No. RS-10—$\frac{5}{16}$" Rivet Set $1.00

No. RS-12—$\frac{3}{8}$" Rivet Set 1.00

oTc Rivet Buster

A very practical tool for shearing rivets off from Frames, Ring Gears, etc. These tools have been found to be extremely practical in used car lots and in shops doing wrecking work. It is possible to save valuable parts with this tool where otherwise they might become damaged beyond repair.

Made from $\frac{3}{4}$" square tool steel and tempered all the way through. Plated.

No. RB-40—10" Rivet Buster $1.25

No. RB-41—14" Rivet Buster 1.50

oTc Chisels and Punches

We believe that the punches and chisels we have sold in the past have represented more value, more service and longer wear than any other similar tools on the market. We have been proud of this fact and do not hesitate to say that for that period **oTc** punches and chisels were outstanding values.

However, our policy of constant research and improvement would not allow us to be satisfied and it was found that the BEST could be made even BETTER.

New alloys were tested and the latest heat treating methods were used in an effort to find the combination that would give our punches and chisels more value to you in service and satisfaction.

After diligent search and continual experimentation a new steel was found, the proper heat treatment was devised and today **oTc** punches and chisels again set a new standard of quality.

The new steel is extremely close grained and exceptionally tough, and is readily adapted to the new method of tempering. These new punches and chisels are tempered with a view to eliminating the mushrooming and chipping of the head, to strengthen the body of the tool to eliminate bending, and to toughen the cutting edge so that it will retain its sharpness through months of service.

Without additional cost or increase in price these remarkable punches and chisels are now available with the assurance that once you use them you will use no others.

All **oTc** Chisels and Punches carry the new plated finish.

oTc Chisels

Item No.	Stock	Bit	Length	Price
CC-8	1/4"	5/16"	5 "	$0.40
CC-10	5/16"	3/8"	5½"	.40
CC-12	3/8"	7/16"	6 "	.45
CC-16	1/2"	9/16"	6½"	.55
CC-20	5/8"	3/4"	7 "	.65
CC-24	3/4"	7/8"	8 "	.75
CC-26	3/4"	7/8"	14 "	1.75
CC-27	3/4"	7/8"	18 "	2.00

CC-25—Set of First 6 Sizes in Kit $3.00

oTc Mechanic's Special Chisel

Made from 5/8" stock, with long thin bit. Very handy for cutting brake band rivets, etc.

No. MS-20—5/8" Octagon Stock, 7" long, 3/4" Bit $0.80

oTc Round Nose Chisel

No. RN-16—1/2" Octagon Stock, 6 1/2" Long, 5/16" Bit $0.70

oTc Cape Chisel

No. XC-10—5/16" Octagon Stock, 5" Long, 1/4" Bit $0.50
No. XC-16—1/2" Octagon Stock, 6 1/2" Long, 3/8" Bit ..... .70

oTc Diamond Point Chisel

No. DP-16—1/2" Octagon Stock, 6 1/2" Long $0.70

oTc Slim Taper Punches

oTc Punches are made under the same specifications as our chisels. Built to withstand continued hard usage, they will not bend, chip or mushroom either on the head or on the point. They are worthwhile values that should not be overlooked.

Item No.	Stock	Bit	Length	Price
TP-8	1/4"	1/8"	5"	$0.40
TP-10	5/16"	5/32"	6"	.40
TP-12	3/8"	3/16"	7"	.45
TP-16	1/2"	7/32"	8"	.55
TP-20	5/8"	9/32"	9"	.65
TP-24	3/4"	5/16"	10"	.75

TP-25—Set of 6 in Kit $3.00

oTc Pin Punches

One of the most essential tools in automobile work. Hand forged from ½" Chrome Vanadium Steel, tempered from end to end, 7" long.

Item No.	Bit	Price	Item No.	Bit	Price
PP-6	3/16"	$0.80	PP-10	5/16"	$0.80
PP-8	¼"	.80	PP-25	Set of 3	2.20

oTc Starter Punches

Tight pins should be started before using pin punch. Hand forged from ½" Chrome Vanadium Steel 6½" long.

Item No.	Bit	Price	Item No.	Bit	Price
SP-6	3/16"	$0.70	SP-10	5/16"	$0.70
SP-8	¼"	.70	SP-25	Set of 3	1.90

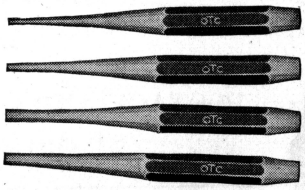
oTc Center Punches

Item No.	Stock	Length	Price
CP-8	¼"	3 "	$0.30
CP-10	5/16"	3½"	.35
CP-12	⅜"	4 "	.40
CP-16	½"	4½"	.45
CP-20	⅝"	5 "	.50
CP-24	¾"	5½"	.60

CP-25—Set of 6 in Kit $2.50

oTc Magneto Pin Punches

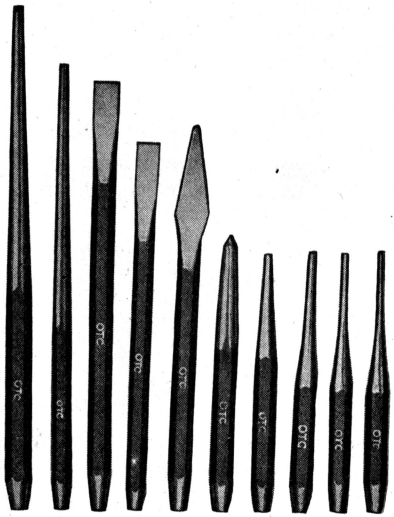
For use on magneto, generator and other work where small pins must be removed. Hand forged from 5/16" chrome vanadium steel. 3" long over-all. Will stand a lot of punishment.



Item No.	Bit	Price	Item No.	Bit	Price
MP-2	1/16"	$0.35	MP-5	Starter	$.35
MP-3	3/32"	.35	MP-25	Set of 3	1.00
MP-4	⅛"	.35	MP-26	Set of 4	1.35

oTc Midget Punch and Chisel Set

A compact, handy set of small forged tools that every mechanic should have. Consists of one each of the following tools: ¼ and $\frac{5}{16}$″ Slim Taper Punch, ¼ and $\frac{5}{16}$″ Cold Chisel, $\frac{5}{16}$″ Cape Chisel, $\frac{5}{16}$″ Center Punch, Starter Punch, ⅛″ $\frac{3}{32}$″ and $\frac{3}{16}$″ Pin Punches in leatherette roll. These tools are strictly **oTc** quality hand forged from Chrome Vanadium Steel and heat treated to give maximum service.



No. MPC-25 ..... **$3.50**

oTc Combined Punch and Chisel Set

A combination of No. CC-25 (page 69) and No. TP-25 (page 70). A combined set of 6 popular sizes of Cold Chisels and 6 popular sizes of Slim Taper Punches, ranging from ¼″ to ¾″. Twelve tools in a handy leatherette case roll.

No. PC-25 ..... **$6.00**

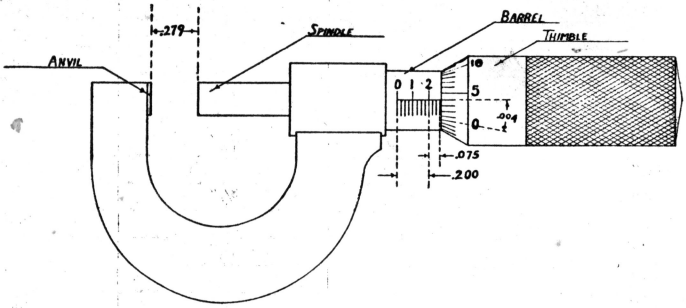
POSTAGE AND C O D CHARGES PREPAID ON ALL ORDERS OF $3.50 OR OVER

Wrench Size Table

Wrench Openings	S.A.E. Nuts and Cap Screws	U.S.S. Nuts	U.S.S. Hex. Hd. Cap Screw
3/8"			3/16"
7/16"	1/4"		1/4"
1/2"	5/16"	1/4"	5/16"
9/16"	3/8"		3/8"
19/32"		5/16"	
5/8"	7/16"		7/16"
11/16"		3/8"	
3/4"	1/2"		1/2"
25/32"		7/16"	
13/16"			9/16"
7/8"	9/16"	1/2"	5/8"
15/16"	5/8"		
31/32"		9/16"	
1 "	11/16"		3/4"
1 1/16"	3/4"	5/8"	
1 1/8"			7/8"
1 1/4"	7/8"	3/4"	1 "
1 3/8"			1 1/8"
1 7/16"	1 "	7/8"	
1 1/2"			1 1/4"
1 5/8"	1 1/8"	1 "	1 3/8"
1 11/16"			
1 3/4"			
1 13/16"	1 1/4"	1 1/8"	
1 7/8"			
2 "	1 3/8"	1 1/4"	

Wrench Openings	U.S.S. Sq. Nut.	U.S.S. Sq. Hd. Cap Screw	U.S.S. Sq. Hd. Set Screw
3/8"		1/4"	3/8"
7/16"		5/16"	7/16"
1/2"	1/4"	3/8"	1/2"
9/16"		7/16"	9/16"
5/8"		1/2"	5/8"
11/16"	3/8"	9/16"	
3/4"		5/8"	3/4"
7/8"	1/2"	3/4"	7/8"
1 "			1 "

How to Read a Micrometer



Every good mechanic should have a good "mike" and should be able to read it quickly and accurately. Before you can do this, you must thoroughly understand the principle on which it works.

The "mike" Screw has 40 threads to the inch. One complete turn of the Thimble (to which the Screw is attached) advances the Spindle 1/40 of an inch. 1/40 of an inch equals 25 thousandths (.025). So obviously each complete turn on the Thimble advances the Spindle 25 thousandths of an inch (.025).

The Thimble has a scale on its circumference with 25 divisions, each division obviously records 1/25 of a turn on the screw. Now if one complete turn of the Thimble advances the Spindle 25 thousandths (.025) then 1/25 of a turn advances it 1/25 of 25 thousandths or 1 thousandth (.001) of an inch. Every 5th one of these graduations are numbered thus—0, 5, 10, 15, 20.

The Barrel has a scale marked along its side which is exactly 1" long. This scale has 40 divisions. These divisions are spaced 25 thousandths (.025) apart. Every 4th one is numbered 0, 1, 2, 3, etc. Obviously 4 divisions equal 4 x .025 or 100 thousandths (.100). So the numbers on the scale on the side of the Barrel are really 100 thousandths (.100), 200 thousandths (.200), 300 thousandths (.300), etc. These numbers greatly simplify the reading of the "mike."

Example: Notice the largest figure visible on the side of the barrel. In the above cut the figure is 2, this means 200 thousandths. Next count the number of divisions visible between the 2 line and the end of the Thimble. In the above cut there are 3 and as each of these divisions means 25 thousandths, we multiply .025 x 3 = 75 thousandths. Add .200 + .075 = 275 thousandths, which is the reading on the barrel. Add to this the reading on the Thimble which in the above cut is 4 thousandths, thus .275 + .004 = 279 thousandths, (.279), which is the correct reading of the mike in the above illustration.

OWATONNA TOOL COMPANY

"Useful Information"

FRACTIONS OF AN INCH IN EQUIVALENT DECIMALS

FOR USE IN CONNECTION WITH MICROMETER CALIPERS

Fractions of an Inch		Decimals of an Inch	Fractions of an Inch		Decimals of an Inch
1/64	=	.015625	33/64	=	.515625
1/32	=	.03125	17/32	=	.53125
3/64	=	.046875	35/64	=	.546875
1/16	=	.0625	9/16	=	.5625
5/64	=	.078125	37/64	=	.578125
3/32	=	.09375	19/32	=	.59375
7/64	=	.109375	39/64	=	.609375
1/8	=	.125	5/8	=	.625
9/64	=	.140625	41/64	=	.640625
5/32	=	.15625	21/32	=	.65625
11/64	=	.171875	43/64	=	.671875
3/16	=	.1875	11/16	=	.6875
13/64	=	.203125	45/64	=	.703125
7/32	=	.21875	23/32	=	.71875
15/64	=	.234375	47/64	=	.734375
1/4	=	.250	3/4	=	.750
17/64	=	.265625	49/64	=	.76525
9/32	=	.28125	25/32	=	.78125
19/64	=	.296875	51/64	=	.796875
5/16	=	.3125	13/16	=	.8125
21/64	=	.328125	53/64	=	.828125
11/32	=	.34375	27/32	=	.84375
23/64	=	.359375	55/64	=	.859375
3/8	=	.375	7/8	=	.875
25/64	=	.390625	57/64	=	.890625
13/32	=	.40625	29/32	=	.90625
27/64	=	.421875	59/64	=	.921875
7/16	=	.4375	15/16	=	.9375
29/64	=	.453125	61/64	=	.953125
15/32	=	.46875	31/32	=	.96875
31/64	=	.484375	63/64	=	.984375
1/2	=	.500	1 in.	=	1.000

Wheel Alignment Data on 1935 Passenger Cars

CAR	CASTER DEG.	CAMBER, DEG.	TOE-IN., IN.	KING PIN INCLINATION, DEG.
Auburn				
653	3½ to 4	1½	⅛ to 3/16	7¼
851	2 to 3	1½	⅛ to 1/16	7½
Buick				
40	2¾ to 3¼	0 to ¾	0 to ⅛	3½ to 4½
50	1¾ to 2¼	0 to ¾	0 to ⅛	4½ to 5½
60, 90	1 to 1¼	0 to ¾	0 to ⅛	4½ to 5½
Cadillac				
V-8, V-12, V-16	1 to 2	0 to ½	0 to ⅛	4½
La Salle	1 to 2	¼ to 1	0 to ⅛	4⅝
Chevrolet				
Master (Ind.)	0a	¼	1/16 to 3/32	7¾
Standard	1¼ to 2¼	½ to 1½	5/64 to ⅛	6⅛ to 8⅛
Master (Conv.)	2¼ to 3¼	½ to 1⅛	5/64 to ⅛	6⅛ to 8⅛
Chrysler				
Airflow CW	1 to 3	¼ to ¾	0b to 1/16	9½ to 10½
Airflow C3, C2, C1	1 to 3	¼ to ¾	0 to 1/16	4½ to 5½
Airstream CZ	½ to 2½	—¼ to + ½	0 to 1/16	4½ to 5½
Airstream C6	½ to 2½	—¼ to + ½	0 to 1/16	9 to 10
De Soto				
Airflow SG	1 to 3	¼ to ¾	0 to 1/16	4½ to 5½
Airstream SF	½ to 2½	—¼ to + ½	0 to 1/16	9 to 10
Dodge 6	1 to 3	¼ to ¾	0 to 1/16	8 to 9
Plymouth				
Deluxe & Std.	1 to 3	¼ to ¾	0 to 1/16	8 to 9
Ford	7 Loaded	2	1/16 to ¼	7
Graham				
72, 75, 73	4½ to 5½	1	⅛ to 3/16	7½
74	6 to 7	1	⅛ to 3/16	7½
Hudson				
G-Gu Ter., GH Ter. HT, HU-HHU	3¼ to 3¾	1 to 1½	0 to ⅛	7
Hudson	4 to 4½	1 to 1½	0 to ⅛	7
Hupp D	1½	1	1/16 to 3/16	7½
O	1½	1¼	1/16 to 3/16	8½
Lincoln	2	1	1/16	7½
Olds 6 & 8	1½ to 2¼	⅛ to 1	⅛ to 3/16	4⅝
Packard				
Std. 8 & Sup. 8 & 12	1	1	—1/16 to 1/16	9
120-B	1½ to 2½ (Top of frame 18″ ab. ground)	¾ to 1¼ (Top of frame 18″ ab. ground)	1/16 to ⅛	1½
Pierce	½ to 1	½ to 1½	⅛ to ¼	8
Pontiac				
Std. 6	1 to 1½	1¼ to 1¾	0 to ⅛ (9 in. ab. ground)	7⅛
De Luxe 6	3/16 in. trailing caster 0 to ¾	2	0 to 1/16 (9 in. ab. ground)	7
8	3/16 in. trailing caster 0 to ¾ deg.	2	0 to 1/16 (9 in. ab. ground)	7
Reo 6A, 7S	1½	1	0 to 1/16	8
Studebaker				
1B & 1C, 2A	¾	1½	1/16 to ⅛	9½
1A	1½	1½	1/16 to ⅛	9½
Willys	1 to 2	2	3/32	7½

aCaster effect at wheel is obtained by trailing center wheel behind center of King Pin.
bToe-in when measured at tire tread, hub height 1/16 in. to ⅛ in.

(Data supplied through the courtesy of the Society of Automotive Engineers and the S. A. E. Journal.)

DRILL AND TAP SIZES

MACHINE SCREW THREADS

Screw Size	Thread	Drill
No. 4	40	3/32"
No. 6	32	7/64"
No. 6	40	7/64"
No. 8	32	9/64"
No. 8	36	9/64"
No. 10	24	5/32"
No. 10	32	5/32"
No. 12	24	11/64"

NATIONAL FINE STANDARD (formerly S. A. E.)

Screw Size	Thread	Drill
1/4"	28	7/32"
5/16"	24	17/64"
3/8"	24	21/64"
7/16"	20	3/8"
1/2"	20	7/16"
9/16"	18	1/2"
5/8"	18	35/64"
3/4"	16	43/64"
7/8"	14	25/32"
1 "	14	29/32"
1 1/8"	12	1 1/64"
1 1/4"	12	1 9/64"
1 1/2"	12	1 25/64"

NATIONAL COARSE STANDARD (formerly U. S. S.)

Bolt Size	Thread	Drill
1/4"	20	3/16"
5/16"	18	1/4"
3/8"	16	5/16"
7/16"	14	11/32"
1/2"	13	13/32"
9/16"	12	29/64"
5/8"	11	33/64"
3/4"	10	5/8"
7/8"	9	47/64"
1 "	8	27/32"
1 1/4"	7	1 1/16"

PIPE THREADS

Pipe Size	Thread	Drill
1/8"	27	21/64"
1/4"	18	29/64"
3/8"	18	19/32"
1/2"	14	23/32"
3/4"	14	15/16"
1 "	11 1/2	1 3/16"

USEFUL INFORMATION

To find the circumference of a circle, multiply the diameter by 3.1416.

To find the diameter of a circle, multiply the circumference by .31831.

To find the area of a circle, multiply the square of the diameter by .7854.

To find the surface of a ball (sphere), multiply the square of the diameter by 3.1416.

To find the cubic inches (volume) in a ball, multiply the cube of the diameter by .5236.

Doubling the diameter of a pipe increases its capacity four times.

The radius of a circle x 6.283185 equals the circumference.

The square of the circumference of a circle x .07958 equals the area.

Half the circumference of a circle x half its diameter equals the area.

The circumference of a circle x .159155 equals the radius.

The square root of the area of a circle x .56419 equals the radius.

The square root of the area of a circle x 1.12838 equals the diameter.

To find the area of a square or the section of a flat bar, or of a rectangle, multiply the width by the thickness. In a square these dimensions are the same.

To find the area of an octagon, multiply the square of the diameter of the inscribed circle by .828.

To find the area of a regular hexagon, multiply the square of the diameter of the inscribed circle by .866.

To find the area of a triangle, multiply the width of the base by one-half of the perpendicular height.

Service Shop Motor Reconditioning Data

PISTON CLEARANCE

Standard clearance allowance for grey iron piston skirts is .00075" (three-quarter thousandth) per inch of piston diameter for pleasure car motors. Applied to different piston diameters clearances are as follows:

2½" piston allow .002" clearance
3" piston allow .0025" clearance
3½" piston allow .003" clearance
4" piston allow .0035" clearance

Many authorities recommend a clearance of .001" per inch of piston diameter on pistons of motors subject to abusive treatment such as taxicabs, trucks and tractors, unless their motors are thoroughly run-in. Applied to a 4" dia. truck piston, clearance allowance is .004". In extreme cases, when heavy duty motors are subjected to constant high speed, an additional .001" clearance should be added to the total diameter clearance.

Upper piston lands (sections above and between rings) must have additional clearance. Top land should have .0035" clearance per inch of piston diameter, second land .003" per inch, and the third land .002" per inch of diameter. Unless this clearance is allowed extreme heating may cause piston head to seize and pull off. In fitting aluminum or alloy pistons piston maker's instructions must be followed.

Aluminum alloy split skirt piston clearance is the same as for cast iron pistons, except where special clearance is specified by maker.

When split skirt pistons are used it is important that the split be installed on the driver's side of the motor, as this is the side of minimum thrust.

Cylinder bores must be refinished to within one thousandth of an inch (.001") for round and straight. This means half a thousandth (.0005") plus or minus a given size. Connecting rods and pistons must be in perfect alignment—at absolute right angles with crankshaft and cylinder. Always use a connecting rod and piston aligner.

PISTON PIN CLEARANCE

Allow .0005" to .00075" (one-half to three-quarter thousandth inch) clearance for oil-film when fitting pins to reamed holes. Pins bearing in cast iron pistons should have no "drag," but should turn almost free. Oil thoroughly before assembling.

BEARING CLEARANCE

Do not assemble main and crankpin bearings tight to shaft but in fitting allow .001" clearance for each inch of pin diameter. Ream solid bearings .001" to .0015" oversize. End play on main bearings .004" to .005" for regular sized motors and about .010" on big trucks and tractors.

CYLINDER GAUGING

A cylinder measuring or indicating gauge is an instrument for **testing the straightness and roundness of cylinders.** It indicates in thousandths of an inch the **amount of taper and out-of-roundness. It measures cylinder diameters** before and after reconditioning and compares the sizes of all cylinders in a block.

An inside micrometer is used to determine what size pistons will fit the hole, or to determine the actual cylinder diameter.

CYLINDER BORE	GAP	CYLINDER BORE	GAP
2¾—2⅞	.015	3⅞—4	.021
2 15/16—3 1/16	.016	4 1/16—4 3/16	.022
3⅛—3¼	.017	4¼—4⅜	.023
3 5/16—3 7/16	.018	4 7/16—4 9/16	.024
3½—3⅝	.019	4⅝—4¾	.025
3 11/16—3 13/16	.020	4 13/16—4 15/16	.026

Grinding Drills

Only properly ground drills can be expected to give satisfactory service and efficiency. Investigation shows that a great deal of drill trouble is not the fault of the drills, but is due to improper grinding. Drills should be ground carefully and accurately to insure a fast cutting, long life drill. Do not overheat in grinding, dip in water frequently when grinding.

We present here a few simple rules for grinding, which, if carefully followed will insure satisfactory results.

1. Both cutting edges should be inclined at the same angle with the axis of the drill and should be of equal length. A point angle of 59 degrees is generally considered the best angle for ordinary purposes. (Fig. 1) Use a protractor to check this angle.

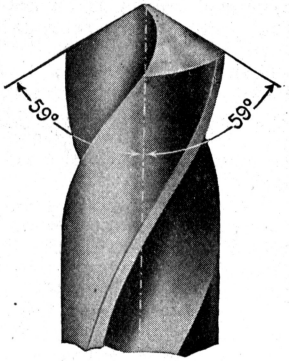


Figure No. 1

2. The angle of lip clearance or contour of surface back of cutting edges should be identical on both sides. An angle of 12 degrees (Fig. 2) combined with the center angle of 130 degrees (Fig. 3), giving a constantly increasing clearance towards the center, has also been found to be best under average circumstances.

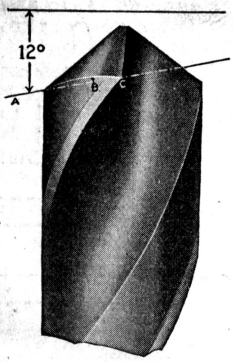


Figure No. 2

3. Both cutting edges should be exactly the same length. Use a steel rule to check this measurement.

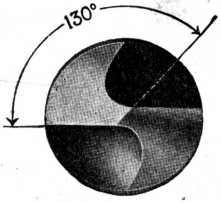


Figure No. 3

OWATONNA TOOL CO., OWATONNA, MINNESOTA

PLEASE SHIP AT ONCE THE FOLLOWING
O. T. C. TOOLS—PARCEL POST—C. O. D.

NAME

STREET

CITY STATE

NAME OF TOOL	PRICE
TOTAL	

WE PAY POSTAGE ON ALL ORDERS FOR $3.50 OR OVER

Your oTc Salesman will get full credit for this order.

OWATONNA TOOL CO., OWATONNA, MINNESOTA

PLEASE SHIP AT ONCE THE FOLLOWING
O. T. C. TOOLS—PARCEL POST—C. O. D.

NAME

STREET

CITY STATE

NAME OF TOOL	PRICE
TOTAL	

28 WE PAY POSTAGE ON ALL ORDERS FOR $3.50 OR OVER

Your oTc Salesman will get full credit for this order.

FIRST CLASS
Permit No. 72A
Sec. 510, P.L.&R.
Owatonna, Minn.

BUSINESS REPLY CARD

No Postage Stamp Necessary if Mailed in the United States

2c - POSTAGE WILL BE PAID BY

OWATONNA TOOL CO.

OWATONNA,
MINNESOTA

FIRST CLASS
Permit No. 72A
Sec. 510, P.L.&R.
Owatonna, Minn.

BUSINESS REPLY CARD
No Postage Stamp Necessary if Mailed in the United States

2c - POSTAGE WILL BE PAID BY

OWATONNA TOOL CO.

OWATONNA,
MINNESOTA

Our Creed

1. Every item shipped from our factory is of current manufacture, of the latest design, and has incorporated in it our most intelligent thought and workmanship. It must be the best we know how to make it.

2. Every item shipped from our factory is guaranteed against defective material and workmanship.

3. Every purchaser of oTc products can be assured that we never recommend a product of the Owatonna Tool Company unless we feel that it will give him a profit too. We will accept business on no other basis.

4. Every purchaser of oTc Tools will obtain exactly the same high grade quality product as any other purchaser. We have no hand picked samples or seconds for sale.

5. Every oTc representative and every oTc employee is in your service. We consider it a pleasure to serve you.

OTC

THE UTMOST IN TOOLS